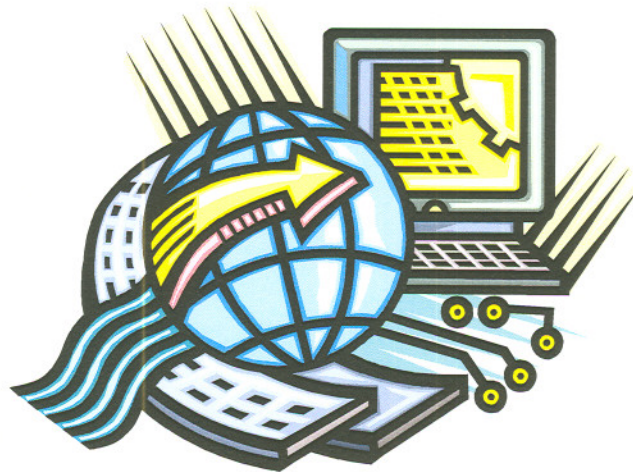# Information Technology Report

Prepared by:

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

June 5, 2007

Table of Contents

Information Technology Report -- 2007

Once again, the Information Technology (IT) department has had another busy year. We implemented a major overhaul of the sign-up system for the public computers as well as installed Wireless Internet at five extension libraries. We also made a major step in testing and will be recommending Radio Frequency Identification (RFID) implementation in the FY08 budget.

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

New Computer Scheduling System Implemented

A new scheduling system for the public computers was implemented in June 2006. This system has standardized the signup for computers at all libraries. There has been an adjustment period for both customers and staff, but has been accepted very well by most customers. When you implement a new product system-wide without having a way to prototype it, it requires several weeks to work out some of the issues associated with the software. We have a lot of creative customers that still look for ways around the time restrictions when others are waiting even though we removed the restriction that only allowed 1.5 hours per day. To determine if there was a software problem or a user trying to circumvent the software, we added "mouse click" logging to both the signup and user computers so that we could determine if the problem was computer related or user related.

Prior to this system, we limited customers to a maximum of 1.5 hours per day of computer usage. With this system, we allow customers to extend time if no one is waiting or get back in the queue if someone is waiting when their time is up. This has greatly increased the utilization of public computers since we have many customers that use the computers for a much longer time period than the previous limit of 1.5 hours.

With this new system, we also have better statistics on usage of the public computers. Prior to the new system, customers could reserve some computers in advance but this did not mean that they always showed up to use them. The older Gates computers were on a first come, first served process and many libraries used a manual wait list when they were all in use. However, this did not provide us good statistics on which libraries had lengthy waiting times. Nine of our libraries now have more than 80% utilization of their computers. Since we implemented the new system, we have added 16 additional computers and plan to add several more this next fiscal year. We added two computers at Belle Isle, four computers at Bethany, two computers at

Capitol Hill, two computers at Del City, four computers at Village, and two computers at Warr Acres.

At the Bethany Library, customers were experiencing waits of longer than an hour and sometimes up to two hours to use the public computers because of the limited number of computers. To add computers at Bethany, we had to have the floor cut out and additional conduit and floor boxes installed. The library was closed for three days to complete this project. We were able to add four computers and customer wait time has dropped dramatically. Staff have reported that customers have been very happy to have the additional computers.

Implementation of System Reserve Labels in Progress

Last year, a task force studied the System Reserve process to look for ways the process could be streamlined and made more efficient. One of their recommendations was to switch from the slips that are printed and put in books to labels that are to be placed on the outside of library materials. They felt that putting labels on the material would save time from the process of putting the slip in the book and then needing to rubberband the book to keep the slip from falling out.

An added benefit of the new reserve system will be a reduction in books held/pulled unnecessarily and a reduction in cross-shipping between agencies. The new system using the labels assigns the item to a specific customer rather than creating a list to be searched by staff. Currently, the system just tells the staff to hold an item that is on reserve. If another library also checks in the same title, it will also tell them to hold the item. With the new system, once it has been assigned to a customer, if other copies are checked in, it will no longer say to hold it for reserve. It also looks at the waiting list as a whole to try and assign it to the library where the material currently is or another library on that route so that cross-shipping is minimized.

One of the challenges to implementing this recommendation was to find a label that had an adhesive strong enough that it would stay on the book but light enough that it would not damage the book when it was removed. We also had to make sure that it was still removable after it had been on the item for several weeks as customers can renew books and if they do not remove the label, it could be up to six weeks before the material was returned. Staff would then need to be able to remove it without it damaging the material. After contacting several vendors and testing many samples, we have located a label with an adhesive that will keep the label on the item without falling off but light enough that it can be easily removed. The bid for the printers and labels was awarded at the May commission meeting. The printers have already been received and the labels should arrive within the next week. IT will be working with Planning to set an implementation schedule for training and startup for the new process.

Migration of Remaining NT Servers to Windows 2003 Servers

We have completed the migration of our remaining NT Servers to Windows 2003 servers. This process was complicated by the fact that our two main domain controllers were very old computers and they also housed our Domain Name Servers (DNS) that allows for resolving addresses for all websites visited. We had to upgrade these two servers to newer computers

running the NT operating system before we could upgrade them to Windows 2003. We also had to move several databases and upgrade SQL7 and SQL2000 to SQL2005 to prepare the main domain controllers for the update. Once we accomplished these upgrades, the upgrade to Windows 2003 went very smoothly.

Wireless Internet Access Installed at Extension Libraries

The library system applied for and received a grant from the Oklahoma Department of Libraries to add wireless Internet access at the extension libraries. We also added MLS funds and took the opportunity to upgrade the communications at Harrah, Nicoma Park, and Wright. Their communications were switched from cable modem access to dedicated T-1 connections. We will also be adding them to the VoIP phone system when issues with security lines and alarms are resolved.

ISBN-13 Implemented

In January, 2007, the book industry began using 13-digit ISBN numbers to identify all books in the supply chain. This change came about for several reasons: 1) to expand the numbering capacity of the ISBN system and alleviate numbering shortages in certain areas of the world; and 2) to fully align the numbering system for books with the global EAN.UCC identification system that is widely used to identify most other consumer goods worldwide. To do this, all current 10-digit ISBNs have to be converted to 13-digit ISBNs. This is done by adding a "978" prefix to the beginning of a 10-digit ISBN and the check digit at the end is recalculated. Our catalog has been modified to handle the 13-digit ISBN. In addition, for former 10-digit ISBNs, the catalog shows both the 10-digit ISBN and the converted 13-digit ISBN. The interface between MLS and our book jobbers, Baker & Taylor and Ingram also had to be modified so that either 10-digit or 13-digit ISBNs could be accepted and work with our system interchangeably.

Customer Authentication for OverDrive eMedia Service

In January, 2007, the library system began offering the eMedia service that allows customers to download audio books to their computer and then transfer them to a CD or MP3 player. To offer this service, we had to work with OverDrive to provide customer authentication so that customers could use the service from their home or office. We worked with them to choose the best method of authentication and then tested with them to make sure the authentication would be working properly when the service was announced. The service has worked very well and customer usage has been very good.

Meeting Room Booking System Updated

The initial request for changes to the Meeting Room Booking System came from the Downtown Library Headquarter's Manager, Candace McDaniel. She needed the ability to add in fees for use of the piano, technical assistance, and custom room setups. She also needed the ability to make notes on an individual booking within the system. In addition, the Planning department felt that it would be helpful if the software would enforce more of the booking rules to provide for better usages statistics. These statistics are part of the Oklahoma Department of Libraries requirements for the annual report data and it is very important to provide them with as accurate

7

statistics as possible. The software has been changed to meet special scheduling and notes needs as well as enforcing category rules to provide more accurate statistics of meeting room usage.

CyberLaunch Browser Updated

Each year we try to update some part of the library system software so that none of the software gets too out of date. One of the items updated during this year is the CyberLaunch browser that is used on the in-library Catalog computers. While we allow the library catalog to be accessed on all public computers, we try to also have computers that are dedicated for CyberMARS usage only. To do this and keep people from using them as extra Internet computers, we have our own web browser that has an Internet Explorer back end but allows us to lock these computers to catalog use only. The previous CyberLaunch browser was based on Internet Explorer 4. The current browser has been updated to use Internet Explorer 6 and VB.net was used for the development which allowed us to have a new look with more descriptive buttons. It also prepares us for the future with a more up-to-date browser if new features need to be added.

E-Rate

Each year we include e-rate as a part of this report. The reason for that is that it is a very important item to the library system. And, to continue receiving e-rate funds, an application has to be filed every year. For FY07, we received a funding commitment of $213,629.98. 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 FY07 is 76%. We have not yet received a funding commitment for FY08. The first wave of commitments just went out the week of April 24th. There were some errors on these commitments and they are having to be re-sent so no additional waves will be released until these corrections are made. If our final application is approved, we will receive a 75% discount on our telecommunications costs which will amount to $236,374.95. This increase is due to the fact that we will be adding another Internet connection for the system.

Evaluating Vista Operating System

The release of the Vista operating system was delayed by Microsoft until the very end of 2006. Because of this delay, we had to delay our purchase of test units but that purchase will take place within the next few weeks. Once we receive the computers, we can begin evaluating the new operating system with our existing applications and determine what changes may need to be made to our software and what training may be needed by staff as all indications are that the interface will be quite different from Windows XP.

We have also already had customers coming in with laptops running the Vista operating system that have experienced problems connecting to our wireless service and we need to be able to see and test what the differences are with wireless Internet on a Vista computer. We have been

able to talk to a colleague at OCCC and got some tips on what the customer could try, but feel that we really need to be able to work with it here too so we are more familiar with it.

Additional Services provided by MLS Information Technology Department

Our help desk has logged and our technicians have handled 1,196 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. In addition to the 14 additional public computers that have been installed, we have also replaced/upgraded another 75 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

There is potential for IT to be involved in the remodel at Ralph Ellison during the coming year although at this time, it is not known if this project will actually be underway during the coming year. IT will also be involved in working with the staff and architectural firm in the design of the new Service Center. 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.

Add Additional Internet Connection

Currently all 17 buildings share one connection to the Internet. With the increased usage of public computers and the addition of wireless Internet access, our connection has shown to be using near the maximum bandwidth available which causes slower response time for both staff and customers. We believe that it will improve response time for all Internet access to add a second connection and then work to balance the load between the two connections. This will involve upgrading and replacement of hardware as well as adding the second connection.

Complete Implementation of New Reserve Process

We are currently working with the Planning Department to prepare a timeline for staff training on the new reserve process. We are also working on installing the printers and adding

additional data jacks where necessary. We hope to complete this project and have the new reserve process completely operational by September 1st.

Radio Frequency Identification (RFID) Purchase & Implementation

RFID has been on our radar as a future plan for several years. We have been monitoring the technology and the prices of the hardware and tags as well as standardizations in the industry. For the last couple of years, standardizations have been good but the pricing of the tags was still cost prohibitive for us to consider for the library system.

In 2004, we did some development testing with a product from SkyeTek. However, we were not pleased with the results. This year, we contacted TagSys, a major RFID vendor to purchase equipment for additional development testing. We were very pleased with the results. With the planning for the new service center and sorting equipment that uses RFID technology a possibility for the new building, we decided to go ahead and seek pricing to see if it would be reasonable to consider as part of the plan. As we looked at pricing, we found that it has come down to a level that is reasonable for implementation within the library system. Our proposal for the first year is to retroactively tag all library materials and install the antennas and readers at all libraries.

Other benefits of RFID include: checking out multiple books in one pass, reduction in repetitive motion injuries, possibility of installing book security systems using RFID technology if a security system is desirable, and shelf inventory.

Currently, materials are handled in excess of 14 million times per year. According to the Tech Logic Corp., RFID eliminates 75% of handling events. Another library already using the RFID technology has reported a 30% decrease in staff time required for repetitive tasks of checking items in and out which has freed staff up to spend more time assisting customers. We believe that this is the opportune time to take advantage of the multiple savings and benefits that can be afforded the library system through the use of RFID technology.

This project will include:

⇒ tagging 1.3 million items that are currently in the library's collection
⇒ Re-developing the Express Checkout software and units to use the RFID technology
⇒ Develop a Standard Interchange Protocol Version 2 (SIP2) module that will allow us to incorporate third party vendors' equipment with our RFID system.
⇒ Develop software to use with a portable RFID reader. This will allow staff to capture data by scanning materials at the shelf and then upload the data to produce reports of exception items such as materials belonging to other libraries, lost and paid items, missing items, tracer items, and items that have been shelved incorrectly.

When a library's collection has been tagged with RFID tags, they will be able to begin using the technology immediately as we will be installing their hardware at that time.

10

We will continue looking at a sorter unit that uses RFID to be used at the new Service Center facility by both Technical Processing for new books and Maintenance for sorting materials that are being transported between buildings. We will also be considering smaller sorter units for the new Northwest Library and possibly retrofitting these units at other libraries over the next few years.

Public Printing Management System

The library currently offers black & white printing capabilities from the public computers. We allow customers to print 10 free pages per day and then they are to pay 15 cents per page for each additional page thereafter. This is all on the honor system.

We have had problems with customers printing a lot more than 10 pages and then not paying or printing and leaving things on the printer because they do not want to pay. We have also had requests to have color printing and for customers using wireless to be able to print from their computers.

We have found a commercial system that will interface well with our system that will handle all of the problems and requests that we have regarding public printing. Once this system is installed, there will no longer be free pages unless a staff person sees that a customer cannot pay but needs the printout and overrides it for them. Even though we will no longer offer free pages, we are recommending that we reduce the per page charge to 10 cents per page. We will be charging more for color copies. The customer has to choose that they want to print and pay in advance. It will be a coin-op system similar to the copy machines. We also will be able to allow wireless customers to print through this same system. We believe that this solution will alleviate the problems we currently experience with customers printing pages and then leaving them on the printer or on a table near the printer.

Other Projects

In addition to the projects listed above, we will be upgrading/replacing approximately 135 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, and other service calls as requested.

Future Plans

We also have many ongoing future plans. Some of these plans may not be completed in this fiscal year, but we 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 18 servers, 191 public computers, 10 Express Checkout computers, 38 Children's computers, 60 CyberMARS catalogs, and 248 staff computers. Hardware for MetropoLIS includes a Hewlett-Packard (HP) NonStop database server with four gigabytes of memory and 144 gigabytes 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 2003 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, the meeting room booking database, and Internet filtering for wireless customers. Two additional servers run the Linux operating system and provide the Bess filtering service for the libraries' computers. Five additional servers are specialty servers for operating the VoIP phone system and managing the wireless network.

The network devices located at the various library agencies are connected to the servers 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. Downtown, where the servers are located, has devices directly connected without use of data circuits. 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 is a 100Mb circuit from the computer center at Downtown to our Internet Provider, OneNet.

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
⇒ 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
⇒ 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

Cash Handling

⇒ Fines and other payment collections
⇒ Prepaid Accounts
⇒ Cash reconciliation interface with Business Office system

System Reserves

⇒ Placing patron reserve requests for materials system-wide
⇒ Automatic "Trapping" of reserved materials at checkin time
⇒ Daily agency search lists containing materials that are on shelf
⇒ Reserves Routing 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
- ➢ Placing of reserves
- ➢ Notification of reserves ready for pickup
- ➢ 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
- ⇒ 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

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

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

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
⇒ Payroll production
⇒ Cafeteria Plan
⇒ Retirement accounting
⇒ Payroll check creation including MICR printing
⇒ Direct Deposit (ACH)
⇒ Query facility and export to MS Excel
⇒ Various reports

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 (Joy of Subjects)
⇒ 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 and Active Server Pages (ASP) 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 have not recommended its adoption and implementation until this report. 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. 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.