

NASIRE 2001 RECOGNITION AWARDS

STATE LIBRARY NETWORK 2000

Executive Summary

In 2000, The West Virginia Library Commission's Technical Staff took on the monumental task of reconstructing the Statewide Library Network. As technology rapidly outgrew our library structure, public demand for more services became a burden. The structure of the Statewide Library Network encompassed all areas of services provided by the public libraries statewide to their customers. To use technology most effectively the Network incorporated the local terminal into a multipurpose instrument for accessing the Internet, local library catalogs, a statewide union catalog, and electronic library catalogs worldwide. The Network also gave all public libraries access to full-text databases covering over eight hundred magazine titles. The rural nature of West Virginia had always presented limitations to libraries because of geography. The Statewide Library Network removed those barriers. However, by providing these services to the public the expectations began to grow even more. To meet the needs of the public the staff had to act fast. A plan was put into place in late 1999 to upgrade the services offered to our patrons on a statewide level. This plan consisted of the following four major goals:

- Replace all non-Pentium based computers with faster multi-media accessible systems.
- Streamline the libraries' Local Area Networks to include adding hubs, cat-5 cabling, high-speed network interface cards, print and disk sharing media.
- Change the IP numbering structure to allow more computers Internet and catalog access, and to reduce the number of sub-networks in each library.
- Add catalog access software and set up the required scripts so libraries could access their catalogs across a Wide Area Network.

Starting in February 2000, the plan now known as "Library Network 2000" was implemented. Below is a brief summary of what this highly skilled team accomplished by working together.

- All 6 regional Hubs were tested and re-cabled as applicable. Each Hub router was upgraded with a faster CPU, memory and Flash card media. A high speed 10/100 switch was also installed.
- 2,560 IP numbers were re-routed in the States northern LATA, and 3,840 IP numbers were re-routed in the southern LATA. This brought the overall Library routed sub-networks from 348 down to 192.
- Re-numbered over 2,500 devices, such as routers, computers and printers. Re-cabled and tested 110 libraries.

Justification

a. Project Description

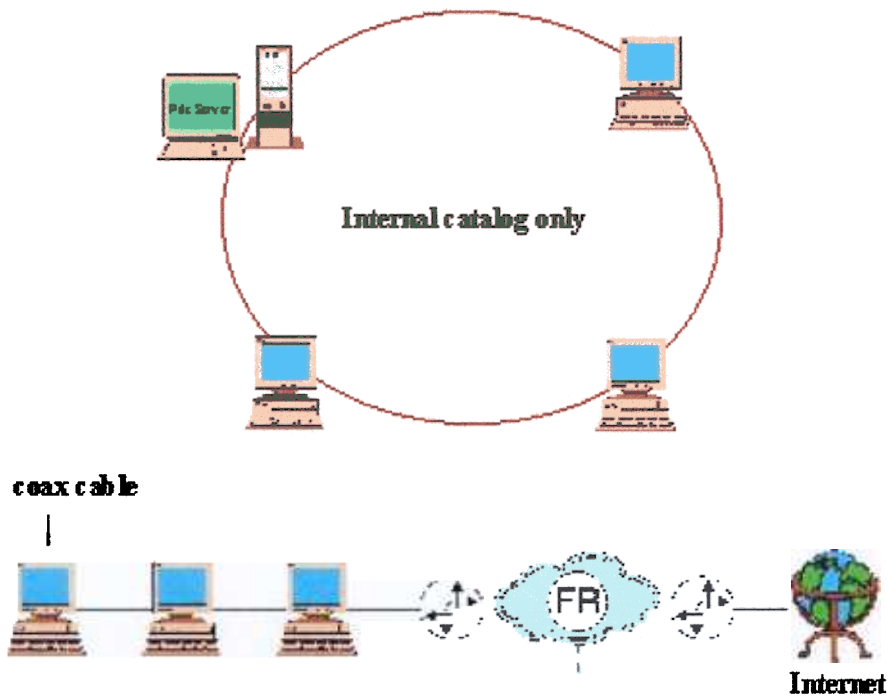
The West Virginia Library Commission's Network Staff consists of State Government employed technicians assigned to maintain public libraries throughout West Virginia. These technicians were placed in regional settings because the rural makeup of West Virginia does not provide a "computer store on the corner." Before the deployment of these technicians most public libraries in the State were without or had very limited access to technical support. In late 1998 into 1999, libraries were brought into the information age when their catalogs were placed on a remote system so that patrons could search "Library Databases" statewide instead of just locally. As time passed, and as public interest grew the demand for Internet, electronic journals, shared library resources, email, and learning centers were discussed. Because of this, and the overnight changes in technology, the "Library Network 2000" plan was born.

The library Local Area Network upgrade consisted of the following:

- Testing and replacing network cables
- Installing or replacing computer systems.
- Adding or changing IP numbers so that the LAN's could be directed to the appropriate regional catalog.
- Reprogramming every library router to reflect the LAN changes.
- Adding hubs and switches where needed.
- Installing needed software, to include setting up scripts and E-mail accounts, library database software, and remote printing. Even trained Librarians on how to host web pages and other services that they could offer.

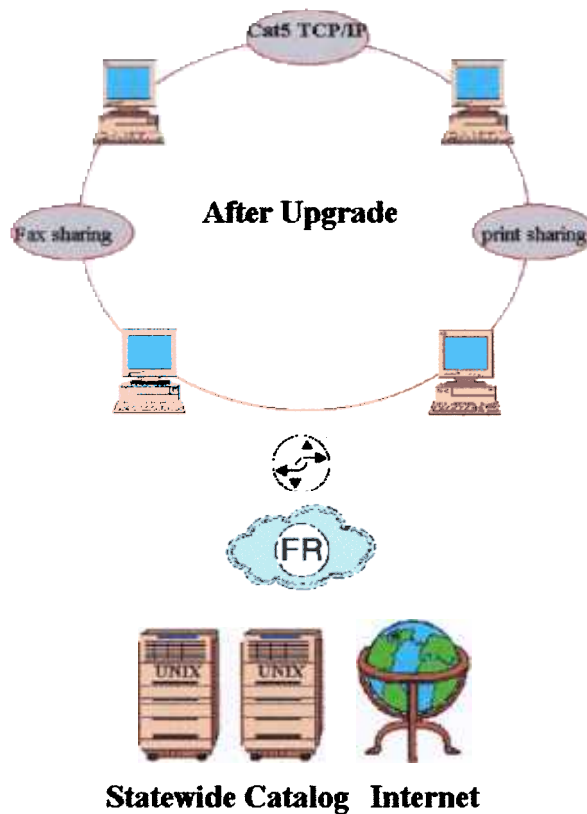
Today there is an average of 10 computers per library. The customers of the public libraries in West Virginia have come to expect the availability of resources from around the world. The State is no longer constrained to the limited resources of the small, rural public library. With just a few keystrokes the library patron can move beyond the narrow, mountain valley to the world. The availability of these resources increases the skills of students at all levels. Distance learning is becoming an important partner in the education of our citizens. By placing these resources at the local terminal of the public library the student is supported in their research needs. Most businesses in the state are small, employing less than 15 people. These businesses do not have "corporate libraries" and the public library stands in the breach. Even preschool students are better prepared to enter school because of the technologies available to them in the library. However, none of these opportunities would be available without the dedicated service of the technicians, who constantly review the needs of the Network and respond in efforts such as the "Library Network 2000."

The following diagram is a typical library prior to the LAN upgrade performed by these technicians.



The development of the Network is ongoing. The activities performed by the technicians in this project have opened pathways for the future development of the Network. The public has come to expect rapid response from technology. Governmental agencies and their partners public libraries must respond to these expectations. The one certainty is that technology will not stand still and wait for a response. The technicians have allowed the library network to position itself for this future expansion.

As you can see by the next graphic, cleaning up the sub-netting and cabling, the technicians have not only cleaned up the local network, they have assured each library a stable network system for future growth. Since library catalogs are on the Network, the stability of the system is very important. Should the system fail even the basic services of the library such as circulation would be nonexistent. The complete rebuilding of the backbone of the Statewide Library Network is vital to this stability. Still technology is only as strong as the technicians that implement it are. This team of technicians accomplished tremendous changes in a very small period of time.



b. Significance of Improvements

The greatest improvement is that each individual library statewide is now uniform. Preceding the upgrades, libraries were running different types of software, some had better computers than others, etc. The intent of the project was to insure all patrons statewide, regardless of library size or area, had the same opportunities for their customers. It is vital that the children in our state have access to computer resources. Some of our libraries are remote, before our upgrades, technology in those areas was limited. The result of this project has not only provided a better library system, but has actually furthered the growth and education of patrons in our smaller towns.

The upgrade also helped with data traffic flow across the Wide Area Network. Initially, libraries were set up with 8 IP numbers. When they began to grow, they were assigned another set of 8 numbers, usually on a different IP network. This caused a lot of problems on the network. This situation and low speed lines hampered library operations especially when trying to remotely maintain their database. Part of the LAN upgrade was also reconstructing the IP sub-netting. All libraries now have a minimum of 16 available numbers to use. Of course, after changing the IP numbers on the WAN, the staff had to change each and every device in each library to reflect the changes. This has really helped with speed and connections.

c. Benefits

By making the libraries uniform, the technical staff is now better prepared to deal with daily library technical problems. Now any member of the staff regardless of the region they work in can walk into any library statewide and know what to expect. This is also invaluable when training new technicians. During the upgrade, a chart was utilized by each technician to include the library floor plan, amount of computers, their IP numbers, printer locations, router csu/dsu location, etc. This library chart is maintained at the West Virginia Library Commission in Charleston and is used by the technical staff on a daily basis.

Library uniformity is also important for the libraries. Not only can we service them faster, but the libraries can also work with each other sometimes taking care of potential problems before they happen.

The LAN upgrade has helped the network staff keep pace with changing technologies. Since the upgrade, we are able to implement changes as they occur (statewide) instead of having to elaborate or have extensive plans in place first. This reduces down time, and takes the individual library staff out of the role of "temporary technician." When changes occur, the staff simply schedules the visits, takes the library chart and any required hardware/software, and makes the changes.

The library's staff now has control over their environment. They are able to give classes on Internet use, or software classes such as Microsoft Word or Excel. Since they can now host their own web pages, they have more freedom to use their own individual ideas, and can post changes as they happen instead of calling a regional technician. Patrons also enjoy these classes and are sometimes invited to help with web page design. The Network changes have allowed for the involvement of the whole community.

d. Return of Investment

The greatest investments are time and savings, present and future. An individual technician no longer has to jump in his/her car and drive for hours to fix every problem. If an area technician isn't available, the library can call the West Virginia Library Commission and a technician will be dispatched. Again, this is the beauty of uniformity. The technical staff feels more at ease by knowing what to look for when problems occur.

Each hub and their individual libraries were scheduled separately throughout the time frame. The staff completed these areas in record time, in some cases by upgrading 6 libraries per day. Since they were able to move with such efficiency, the average cost of upgrading 110 libraries was a mere \$120.00 each. Of course there was no cost to the library itself. This group worked grueling hours, sometimes until late in the evening, just to stay on schedule. They did it to keep travel costs down and to get libraries up and running. This is an outstanding group. Thanks to them, West Virginia libraries can look forward to a bright future in technology.

Thanks to looking ahead, this upgrade ensures the West Virginia Library Network infrastructures are in place and solid, should major changes in technology occur. Thanks to uniformity, we can keep costs to a minimum, performing preventative maintenance and upgrading existing resources instead of expensive replacements. All of the technical advantages, however, are outweighed by the service provided to all citizens of West Virginia through the public libraries. The project is a hallmark for state government working with local organizations to provide services to all citizens.