TECHNOLOGY ASSESSMENT SUMMARY

The following is a summary of major findings and recommendations prepared by Diane Mayo in assessing the Library's technical infrastructure for the capability of supporting access to information and providing both staff and the public with the tools they need to use that information effectively for their work and leisure.

The fundamental technical infrastructure of any modern library is its network. For libraries the network includes:

- desktop technologies that provide the staff and public with access to both the library's collections and a wide range of machine readable resources, both text and non-text.
- appropriate technical tools to manage access to the library's resources, such as patron authentication for licensed electronic resources, and an integrated library system with self-service features available 24/7.
- some means of capturing and transferring the library's machine readable resources for further use, such as printing, cutting and pasting into spreadsheets or word processing documents, downloading files, saving to disks and emailing results of searches.
- sufficient bandwidth, both local and wide area, to support the service demands.

To support the network libraries need staff with appropriate technical skills or outside third-party sources for those skills. To support the provision of services, libraries need public services staff who are comfortable with the supporting technologies and capable of assisting the public in the use of those technologies.

TECHNICAL INFRASTRUCTURE

Findings

PC Desktops

1. The Fort Worth Public Library's PC population ranges from Pentium machines barely capable of running Windows 95 operating system through Pentium 3 machines running Windows 2000.
2. Over half the machines are more than 5 years old and many have no maintenance agreement to cover them if they fail, placing responsibility for troubleshooting and repair in the hands of the Library's IT staff.
3. The Central Library's computer lab operates on four-year old machines and

run outdated Windows 98 operating system and the version of Windows office automation compatible with that operating system.

4. The range of equipment and operating systems makes it difficult for the Library's IT department to support the machines.
5. Many of the best practices employed by other urban libraries are either not available to the IT staff or are of limited usefulness.
6. The range of PCs affects public service as well, since many of the machines are incapable of supporting the full range of software and Internet helper applications needed to provide basic services.
7. The range of public PCs also make implementing an effective virus security strategy difficult.
8. To combat the problem of user introduced viruses, the Library requires that patrons purchase floppy disks from the Library to download machine readable information or files.
9. Through the policy that requires charges for printing and other practices, the Library has effectively ensured that only those who can afford to pay extra for electronic services will receive them.
10. Most of the furniture housing public PCs lacks the necessary space to support taking notes.
11. Staff PCs vary widely in their abilities to support basic staff functions.
12. Many of the staff PCs are incapable of supporting even basic email clients such as Microsoft Outlook.
13. The Library lacks a single common electronic tool for staff communication.
14. PCs at public services staff desks offer different services from one another, with some PCs not connected to the printers at the desk.
15. Many public service desks have only a single printer, with the result that a single hardware failure can effectively cripple service at a public desk.
16. Rather than adopt a policy of regular PC replacement, the Library has decided to retain its range of desktop equipment and implement Citrix, an application serving software solution that will address some of the service issues of variant software mentioned above and should also relieve the some of the maintenance demand on IT staff.

Bandwidth

1. Of the 14 branches, only 3 have more that 128 kbps (kilobits or 1,084 bits per second) connectivity to the Central Library and the Internet and those 3 have only 384 kbps. The average home user has ¼ to ½ the connectivity of an entire branch library. Urban library peers of the Fort Worth Public Library typically connect the branches with T1 phone lines (1.5 million bits per second) and often connect to the Internet with multiple T1 lines or fractional T3 (a portion of 45 mbps).
2. The FWPL appears to have never applied for the Federal government E-rate program, which is designed to provide financial support for public library telecommunications costs to ensure that adequate bandwidth is available for public service. Apparently, it was believed that City supplied phone services are not eligible for reimbursement. State of Texas funding from the Texas Technology Infrastructure Fund paid for the initial wide area network and subsidizes the on-going line charges.

Integrated Library System

1. The Dynix integrated library system (ILS) that manages circulation and the online catalog is running on Data General hardware that will no longer be supported by maintenance from the manufacturer in 2003. In addition the Dynix software itself is being phased out by the developer, epixtech, in favor of a newer generation of software called Horizon.
2. The Library plans to replace the hardware with a Sun server in 2003 and hopes to replace the software within 1-2 years, using the Sun hardware as the platform for the new software in the future.
3. The Library's implementation of the Dynix online catalog software employs three separate user interfaces, PAC for Windows, HTML Web PAC, and Java Web PAC, each of which offers the user different services.

Recommendations

1. Develop and deploy a limited number of software suites available to the staff and public, ideally no more than 3 suites: one for staff and two for the public, one for children's PCs and one for adult PCs. This will provide a standard set of services to the public throughout the Library, regardless of the device a user sits at. It will also standardize the software the staff expects IT to be able to support.
2. Ensure that every PC is connected to a printer and that every staff PC on

public desks is connected to at least two printers. There should be no single point of failure that can inhibit the delivery of public service at staff desks.

3. Proceed with the plan to upgrade the Data General server but recognize that this will not be the single server to be used for the next generation of ILS software. Conversion from one ILS system to another requires simultaneous operation of both the old and new systems to effectively convert online transactions without adverse impact on public service.
4. Recognize that the Citrix solution is not widely adopted in libraries and, therefore, new applications will require more time and testing at the Fort Worth Public Library than they do in other libraries.
5. Be prepared to invest in additional wide area network bandwidth. Even with the Citrix software in place, the Library needs to recognize that more and more electronic information resources are media-enhanced. Many popular electronic resources, those that "fulfill community residents appetite for information about popular culture and social trends," are employing visual and audio digital formats that have high bandwidth requirements.
6. Apply for E-rate funding to relieve costs of upgrading the wide area network.
7. Even though the Library signed a five year agreement with SBC at the time of the last network upgrade, this should not be seen as a barrier to upgrading the network.

IT STAFFING

Findings

1. For the size and complexity of the network it supports, the Library IT staff is quite small. De facto standards of staffing for network support indicate that one FTE staff member is needed to support every 50 PCs in networks that impose no standards on the operating systems and applications deployed.
2. The existing staff functions primarily as PC/peripheral repair technicians, working hard to keep the wide range of PCs functioning, particularly those without maintenance coverage.
3. Current IT staff skills do not provide a solid foundation for the introduction of additional technology-based services in the future.
4. In urban libraries similar to the Fort Worth Public Library but with much better technical infrastructures, IT department staffing and practices are significantly different.

Recommendations

1. Assess the technical IT skills needed and put plans in place to acquire them. It is critical that the Library not commit to providing services it cannot support.
2. Commit time and money to maintaining the skills of the IT staff. The speed with which technology changes and the rapidly evolving list of library services that employ technology as a component of delivery mandate that Library IT staff continuously refresh and expand their skills.
3. Develop a project management approach to IT tasks with timelines, resources needed and staff responsibilities clearly defined at the outset. Project plans and priorities should not be changed without a major environmental shift or emergency.

E- SERVICES

Electronic services are different from in-library services, although the user's needs are usually the same. In-library services are often mediated by staff who help users frame their questions and provide contexts for retrieving information or materials. Even in-library self service is mediated to some extent by signage and the physical arrangement of materials in library buildings.

Findings

1. The existing technical infrastructure of the Fort Worth Public Library is not robust enough to support any immediate large scale expansion of technology-based services.
2. Some simple restructuring of the existing Web pages and rethinking how the existing electronic services are or could be used would improve library services.
3. The Library's web site currently functions primarily as an online brochure of services. It provides limited topical access to materials and services and no new services that take advantage of the medium.
4. There is no integration of the Library's print and electronic resources. (Electronic magazines and newspapers can be discovered only by selecting Online Databases then selecting a resource and executing a search. Searching the online catalog, a logical action for an experienced library user, does not retrieve pointers to the online databases. Searching the Online Databases and Internet Resources pages on the web site does not promote use of the physical materials either.)

5. The web-based online catalog offers three distinct user interfaces, PAC for Windows in the libraries, Java WebPAC and HTML PAC, each of which offers a different set of user services.

Recommendations

1. Treat the Web site as an electronic branch. The Library's web site is a service outlet just as the physical libraries are. It needs a service administrator and staff, in the same way that branch libraries have branch heads and staff.
2. Design user assistance into e-services. Users value the assistance they receive from staff in using the library and its resources; therefore, assistance needs to be designed into the Library's e-services as well.
3. Integrate print and electronic resources. Surveys of web and library usage demonstrate that most users of one are users of the other as well. The Library's web site should include multi-level links among all library resources.
4. Expand e-service offerings that support the Library's priority service responses and that most likely to interest users and potential users.
5. Support in-library users as well as off-site users, especially users of smaller branches by making the e-branch an extension of their limited reference collections and magazine holdings and by providing synchronous digital reference the reference services.
6. Train digital services staff in necessary skills if the long range service plan involves expanded technology-based services, especially for off-site users. Special training is needed for staff involved in asynchronous, email reference and virtual service delivery.