



Library Development

System Network and Telecommunications Infrastructure

Name of Library System	A) What is the current operational schedule?	B) Who manages the network on a daily basis?	C) What is the minimum bandwidth guaranteed to each public library and branch?	D) Do public libraries pay the full cost of access to the network, or is there a cost sharing or subsidy plan?	E) Who are your telecommunication partners in this effort and what are the core components used, including backbone bandwidth and routing equipment?
Brooklyn Public Library	12 x 7	Brooklyn Public Library's Information Technology Department	T1	BPL pays full cost. We are very anxious to get e-rate approval.	Backbone bandwidth is 100mbps, capable of being fully duplexed for 206 mbps. Core components are Cisco Catalyst 5000's and 5500's.
Buffalo & Erie County Public Library	The Buffalo & Erie County Public Library Network Support Center is open 24 hours hours/day 7 days a	Management for the Buffalo & Erie County Public Library Network Support Center is provided by the	The Buffalo & Erie County Public Library Network Wide Area Network (WAN) is a "hub and spoke" frame	Public libraries pay the full cost of access to the network.	The telecommunication partners of the Buffalo & Erie County Public Library are 1) Bell

	week.	Deputy Director, CIO, Shirley Whelan, who reports directly to the Library Director. Ms. Whelan is supported by the Network Support Center staff which consists of two Information System Coordinators, a Senior Computer Operator and 2 Computer Operators. In addition, through a contract with IKON Business Systems, all workstation and printer maintenance is provided by 2 on-site technicians.	relay network. The host or hub is located at the Central Library. The minimum bandwidth guaranteed to each public library and branch is 56K.		Atlantic who provides the frame relay network and 2) Applied Theory (NYSERNet) who is the Internet Provider. The backbone is made up of T-1 connections from the Central Library to both the Bell Atlantic Central Office (CO) and NYSERNet. Currently, all frame relay circuits to the branch and town libraries are 56K. Performance is carefully monitored and bandwidth will be increased as necessary. Cisco routers are used at all sites.
Chautauqua-Cattaraugus Library	The network is up 24 hours. The web part of the network	Sharon Grossman (Martin Swalboski & Karen Golden	56 K - as nearly as can be determined by staff.	There is no cost to member libraries other than occasional	Applied Theory - 56 K line for Internet Access Alltel for

System	is down from 11 P.M. to 5 A.M. for backup and maintenance. The LAN is available for dial access through 4 ports on the Cap Server (there are 2 - 800 numbers available). There are no permanent direct connections outside the James Predergast Library/Chautauqua-Cattaraugus Library System building (I.e. there is no WAN)	are backup staff)		telephone charges for dial-in due to Bell Atlantic pricing structure (libraries are treated as businesses and are charged for all calls) - or when 800 lines are busy and long distance has to be used.	local telephone service AT&T for 800/WATTS and long distance telephone service Equipment: 4 - HP Advance Stealth 100VG Hubs; 1 - HP (10 Base-T) 28691A Ethertwist Hub 8; 1 Cisco 2501 Router; 1 Cray DCD-3061 Modem; 1 Evergreen Cap Server; 1 HP LP Pro - Webserver; 1 HP LH Pro - Network Fileserver Service Contract: SU Technologies - Bradford, PA Meridian Technology Group (for HP equipment)
Clinton- Essex- Franklin Library System	Monday-Friday: 8:00 - 5:00	Elizabeth Rogers	56kb	Cost sharing plan	Telecommunications partners are Bell Atlantic and Northnet (NC3Rs). Internet service provider is Northnet. Core

					components are a WAN providing 56kb access to member libraries with Cisco routers at each end. The WAN is expected to be operational, serving one member library by mid-November.
Finger Lakes Library System	We run some combination of our three servers 24 hours a day, 7 days a week. We do regular backups of the catalog every night, which do not require system shutdown, and again once a week, which shuts the catalog server (the HP9000) down for about an hour after midnight on Sunday. The NT server shuts down for backup once a week, also late	The network is managed on a daily basis by Rex Helwig, Jan Aguirre, and Judy Swann at the Finger Lakes Library System Network Information Systems office.	We do not provide or guarantee bandwidth to our member libraries. The second of the two attached tables lists the various ISPs our member libraries work with.	Many member libraries get free Internet access from their providers. Those using the lakenet service enjoy, I believe, a state subsidy. Others pay full rate.	The Finger Lakes Library System is guaranteed 768K of High-bit-rate Digital Subscriber Line throughput from Clarityconnect for those of its own internal operations that require Internet access. This connection is realized with a PairGain modem. We also have a 16 port Synoptics Lattislink workgroup concentrator to spread this bandwidth around

	<p>Sunday night, for about 20 minutes. The first of the two attached tables shows what we have in the network Information Systems office.</p>				<p>the Finger Lakes Library System office.</p>
<p>Four County Library System</p>	<p>The automated system operated by the Four County Library System is available 365 days annually and from 5:00 a.m. to 9:00 p.m. daily.</p>	<p>The 4CLS Automation Systems Manager and department staff (1 FTE)</p>	<p>56K</p>	<p>Libraries circulating online (using DRA) pay according to the 4CLS automation rate schedule. All other libraries have dialup access to the automated system and the cost of their participation is subsidized by 4CLS.</p>	<p>Providers: Citizens Communications; Delhi Telephone; Frontier Cellular; NYNEX/Bell Atlantic; RG Data/Frontier Network Systems Components: Four County presently has 17 online full circulating libraries running on a VAX 4300 and using Data Research Associates software. Along with the online libraries, we have 24 libraries that access our database through the DRA Gateway module</p>

over an 800 number with 6 rollover lines and 2 local numbers. Of the 17 online libraries, 8 access the Four County automated system on 56k digital lines broken out from a T1 data circuit through a channel bank. A total of nine online (the mentioned above plus one more with a straight dedicated 56k data circuit) are networked through a series of multiplexors and terminal servers with router module and hub add-on capability. Of these 9 online libraries, 5 have the proper network modules in place and addressed for graphical internet capability. The

					remaining 8 libraries reside on older networking equipment that is no longer being su
					In the immediate future we will be moving four of the online libraries with analog data circuits to 56k data circuits either over the T1 channel bank or over a frame relay network. These four libraries will get a combination of routers, hubs and terminal servers so that graphical internet access is possible. The near future will see a migrations from our DEX VAX system to a DEX Alpha platform. Our VAX is where our operational software, functional software and

					databases reside and it acts as our network server. The operation network software resides on the VAX, and it will move to the Alpha. Specifically, that software is DECNET and Multinet with the internet text-based browser, LYNX. In 1999 we will convert the analog line and move all the remaining data circuits from the old multiplexor system to router technology in preparation for the move to a client server environment.
Mid-Hudson Library System	24 hours per day, 7 days a week.	Dir. For Computer Operations: Mohamed Toufali Dir. For Communications Resources: Denise Garofalo Dir. For	56K for 30 libraries 28.8 dial up for 33 libraries	There is a cost share of 50% of the total cost (currently being revised).	GEAC, Bell Atlantic, AT & T, ICI, Frontier Backbone bandwidth T-1; Motorola Routers

		Data Operations: Linda Crow All are full-time			
Mid-York Library System	24 hours a day, except Saturday night and an occasional Sunday morning for maintenance.	Linda Manfredo, System Manager & Automation Department Manager, with the assistance of a network consulting firm.	56Kbs, if connected to the network	Cost sharing among libraries and Mid-York. Also, costs subsidized by Madison and Oneida counties.	Bell Atlantic T1 frame relay, Digix T1 Internet access, DEC hubs, Memotec ISUs
Mohawk Valley Library Assn.* *In conjunction with Southern Adirondack Library System	24 hrs. per day, 7 days per week	2 computer professionals (Michele Largeteau and Diane Robinson)	1 site: 512 kbps; 3 sites: 384 kbps; 11 sites: 56 kbps; 5 sites: 9.6 kbps. 35 sites remain to be connected.	The network and automation programs are partially subsidized with State automation grant funds.	Wide Area Network: Bell Atlantic and Citizens Telecommunications Company; ISP: Data Research Associates
Monroe County Library System	7 days/week - 24 hours/day	Total Automation Department Staff - 10 FTE Library Staff managing day to day network: Computer Operations Supervisor - Laine Williams Computer	64K over frame relay network	Libraries pay cost shares based on # terminal/workstations; collection size and circulation.	Backbone Bandwidth - T-1 Routers - Cisco Key Vendors/Partners - Frontier Communications (Frame relay network); Applied Theory (internet)

		Operator - Martha Ruggierz Microcomputer Specialist - David D'Augustine Computer Programmer - Phong Huynh			
Nassau Library System	The Nassau Library System operates three networks providing electronic information to public libraries, system staff, and public library patrons within Nassau County. The ALIS network provides direct access to the online catalog, electronic databases, and the Internet for the public libraries within the system. The NassauNet network provides dial-up access to the Internet for public library patrons from	ALIS - Brenda Giovanneillo, ALIS Consortium Director; Diane Miller, Assistant System Coordinator NassauNet & NLS LAN - Debbie Jaszcar, Computer Support Services Coordinator; Tom Kutschera, PC Support Technician.	ALIS - 56Kbps or T1 depending on the circuit speed purchased by each library. NassauNet - 33.6Kbps	ALIS - Public libraries pay full cost for their individual circuits NassauNet - Nassau Library System pays full cost. Public libraries and public libraries patrons do not pay for any NassauNet costs. Nassau Library System pays full cost of NLS LAN.	ALIS - Telecommunication partners are DRA and Corstar Business Computing, Inc. Core components include: CISCO 7513 enterprise router, CISCO 2900 Workgroup Switch. Dedicated T-1 circuit to DRA for Internet access. NassauNet and NLS LAN- Telecom. partners are Digex, and Bell Atlantic. Core components include: Sun Sparc5 and Ultra1 servers, CISCO 2511 and CISCO 3640

	<p>their home computers.</p> <p>NassauNet also provides direct access to the Internet for system staff. The Nassau Library System local area network provides access to data and resource sharing for system staff. ALIS - System is running 24/7 except for 3 to 4 hours for weekly maintenance.</p> <p>NassauNet - System is running 24/7 except for 2 hours for weekly maintenance.</p> <p>Nassau Library System local area network operates during regular business hours. Mon - Thurs 8:30 am - 9pm, Fri. 8:30 am - 6 pm.</p>				<p>routers, 3COM hubs, and U.S. Robotics Quad Analog/Digital modems. Dedicated T-1 circuit to Digex.</p>
New York	7 days a week, 24	The NYPL	Branch Libraries -	Not applicable. No	CISCO - Routers

Public Library	hours a day	Information Technology Group	T1 (1.544 Mbps); Research Libraries - OC12 (622 Mbps)	costs are borne by branches because they are not "member libraries" but rather branches in the NYPL system. All system/network costs are paid centrally and managed centrally by the NYPL Information Technology Group.	and switches; Bell Atlantic - T1 service to Branch Libraries; NYSERNet - ISP; Metromedia Fiber Networks - Dark fiber to major facilities with equipment provided by NYPL (CISCO) Backbone Bandwidth - OC12, Internet access T3
Nioga Library System	The current operational schedule is the following: Monday through Saturday: 5:00am to 12:00am Sunday: 8:00am to 5:00pm	The following staff members manages the network: Thomas C. Bindeman, Assistant Director, Full time Joseph Umhauer, Technical Services Consultant, Full time Justin Genter, Automation Specialist, Full time	Seventeen member libraries and one branch are guaranteed 56kb speed. Four member libraries and one branch have dial up capability (9600 baud).	The Library System maintains a Frame Relay network that the member libraries and branches have joined. The System pays for the T-1 into the Frame Relay cloud and the member libraries pay for their connection to the cloud. The Library System pays for the T-1 internet circuit. The Library System also maintains an "800" number for those libraries and	The telecommunications partners are the following companies: Wide Area Network: Bell Atlantic (data circuits for the Wide Area Network) Sprint (internet data circuit) Applied Theory (maintains the internet circuit) Dial up Connection: Bell Atlantic ATT Frontier Communications Core components of

				branches who have dial up capability.	the Wide Area are: Nineteen routers Nineteen hubs Nineteen terminal servers The backbone bandwidth for the wide area network is T-1 speed. The internet trunk line that is connected to the wide area network is T-1.
North Country Library System	The NCLS Service Center is open Monday-Friday, 8:00 AM - 4:30 PM. The online network is available throughout the day, 7 days per week, except for scheduled maintenance and backups, 11:30 PM - 1:00 AM.	Steve Bolton, Associate Director - Information Tech. Yvonne Reff, Information Technology Consultant	NCLS has five libraries online for circulation and public access catalog. Each of these libraries has a 56K connection to the service center. A sixth library is scheduled to go online in November. Five libraries have a direct 56K connection to the Internet for the public. Forty-six libraries have 28.8Kbps	Online circulation libraries pay a fee that fully covers the cost of data communications, but the overall expense of providing the service is subsidized by NCLS. The direct 56K connections are paid for by the NC3R's Council. These 46 dial access libraries all have at least one POTS line for dialing out to the Internet. All of these libraries absorb the full cost of	Developing a frame relay network in cooperation with the NC3R's Council. We use Cisco routers, a fractional T1 backbone and individual 56K connections.

			dial-access to the Internet for the public.	these lines, which are billed at the business rate.	
Onondaga County Public Library	24 hr./day except Sunday 4a.m. - 9 a.m. for maintenance	Mike Fintak, Computer Repair Technician	56Kbs	OCPL pays primary cost with small contributions from some member libraries.	Bell Atlantic, Applied Theory, Cisco Routers, Bay Network Hubs, Frame Relay
Pioneer Library System	The 41 member libraries of the Pioneer Library System are in the midst of a system-wide wiring project in partnership with the Wayne-Finger Lakes BOCES LakeNET consortium. When complete, this will either upgrade the bandwidth for existing Internet access and/or support multiple concurrent connections, available on demand, all open hours. Currently, the system office	The System Office network is maintained by James Nichols, Library Technical Assistant, in conjunction with the Automation Department Head and a private consulting firm. Member libraries are responsible for maintaining their local networks, and do so mostly through hiring private consultants.	Telecommunications costs preclude installation of leased lines in a few PLS member libraries. For those sites, minimum bandwidth will be 28.8-56K POTS connectivity. For the majority of PLS libraries, minimum bandwidth will be 56K leased lines.	In the present, pre LakeNET implementation environment, each library is paying for their own access. When complete, the LakeNET grant will fund installation and a year of access charges	Most PLS libraries will receive Internet access through LakeNET, a wide-area network supported by the Genesee Valley Wayne-Finger Lakes Educational Technology Service office. The network comprises three nodes (Batavia, Mt. Morris and Newark), all with Cisco routers and a mixture of High-Speed Serial Interface (HSSI), CT3, serial and Fast Ethernet, and Ethernet cards. A combination of

	and most members access the Internet by single session, dial-up connections through local ISPs.				DS3s and multiple T1 links run between the nodes. Two Cisco 7500 routers (in Batavia and Mt Morris) are connected with a T3 link to a third Cisco 7500 router in Newark. The T3 link provides a single 45-megabit gateway to LakeNET's Internet Service Provider.
Queens Borough Public Library	Network and OPAC run 7x24 Data Center is manned from 8AM to 10PM daily. Web site including access to the catalog is available at all times except when system software is being changed (rarely).	Network Manager and Network Technicians	56K is the minimum now. Will be at 384K for smallest branches and T-1 or more to all others. Largest branches will have a second T-1. Central's access to the Internet will be by T-3 to CUNY next month.	Within the Queens Library system, the branch libraries pay no fees. The Queens Borough Public Library does, however, pay full costs to Bell Atlantic and City University of New York.	Bell Atlantic for basic and frame relay telecomm services. City University of New York for access to the internet. Cisco Communications for routers, and switches. Backbone at the central location is 100MBPS FDDI with 10MBPS to the desktop. Cisco Catalyst 5000 and 5500 switches

					are used as well as 4000 series routers. Each branch has a Cisco 2500 series router.
Ramapo-Catskill Library System	7:30am - 9:00pm Mon-Fri 8:30am - 5:30pm Saturday 10:30am - 8:00pm Sunday	Stan Ploszaj, Karen Boyle	9.6Kbps dedicated. Will be 56Kbps frame relay by end of 1998.	Subsidized	Partners are Bell Atlantic for frame relay circuits, Frontier for internet access and Bay Networks for router, hubs and terminal servers.
Southern Adirondack Library System* *In conjunction with Mohawk Valley Library Association	24 hours per day, 7 days per week	Two Computer professionals (Michele Largeteau and Diane Robinson)	1 site: 512 kbps; 3 sites: 384 kbps; 11 sites: 56 kbps; 5 sites: 9.6 kbps. 35 sites remain to be connected.	The network and automation programs are partially subsidized with State automation grant funds.	Wide area network: Bell Atlantic and Citizens Telecommunications Company; ISP: Data Research Associates.
Southern Tier Library System	STLS has a central computer (DEC Alpha 1000) connecting 45 libraries (including 4 branches, 2 reading centers) and the STLS headquarters	The network is managed on a daily basis by Jackie Fitzpatrick, the STLS Automation Consultant/System Manager (1FTE).	The minimum bandwidth guaranteed to connect to the central computer is through a dial-up phone line connection to a	Beginning in 1999, the libraries will contribute to the cost of the network through a cost-sharing plan. STLS pays most of the cost.	Bell Atlantic, MCI and Citizens Telephone are our telecommunication partners that connect the libraries to the central computer. We have

in a wide-area network. The network consists of eight 56K digital data circuits, three 9.6K analog multi-drop data circuits, and four dial-up phone lines connected to four 14.4bps modems. The computer is operational 24 hours a day, 7 days a week.

14.4bps modem.

eight 56K digital data circuits, three 9.6K multi-drop analog data circuits, and four dial-up phone lines (3 800#, 1 local). MCI provides three of the eight 56K digital data circuits as well as the three dial-up 800# phone lines. Citizens provides part of two 56K digital data circuits that cross into Citizens' territory (Dundee and Hammondsport). Bell Atlantic provides the local dial-up phone line, five of the eight 56K digital data circuits and the three 9.6K analog circuits. Currently we have all asynch terminal traffic connected to multiplexors. We have 1 Cisco router

					which connects the network via a 56K digital data circuit to Data Research Associates, our library software vendor in St. Louis, for text-based internet service. STLS pays Data Research Associates for the circuit to St. Louis and the lease of the router. We plan to begin the migration to a routed TCP
Suffolk Cooperative Library System	24 hours per day, 7 days per week	SCLS staff	56k	The Suffolk County frame relay network began with a grant/subsidy program. Each library was responsible for the dedicated line and associated equipment for their building.	Our frame relay partner is Bell Atlantic. Member Libraries: 29 buildings have two frame relay lines into their building. A 56k line for communication with the INNOPAC system housed at SCLS and a 56k, 384 or T1 (as appropriate) for

					<p>general access to the Internet and subscription databases available over the Internet. These libraries also have ISDN backup for the INNOPAC 56k line. Each library has a Cisco 2503 router.</p>
				<p>SCLS paid for installation and reimbursed the libraries for three years, with a decreasing reimbursement each year. As of 1999, libraries will pay the full cost of the line and hardware for the building. All costs associated with the backbone, central site communications hardware and outgoing lines are part of the SCLS operating budget.</p>	<p>Backbone: Each library connects to the backbone at the closest Bell Atlantic Central Office. The backbone is a shared T3 cloud that breaks out into five T1 lines to SCLS. One T1 line is dedicated to INNOPAC traffic, two T1 lines support general Internet access from the libraries and two T1 lines support the remote modem banks for patron dial access</p>

					to the Internet from home. There are two remote modem banks located at the Mastics, Moriches, Shirley Community Library and the Copiague Memorial Public Library. These banks support 80 modems. SCLS Central Site: SCLS has three Cisco 4700 routers. One router is dedicated to INNOPAC traffic. The other two routers support general Internet access. There is a bank of 360 modems to support patron dial access to the Internet from home. There are two T1 lines from SCLS to our ISP.
Upper Hudson Library	twenty-four hours a day, seven days a week	UHLS employs a system manager	56K	libraries pay as well as system state aid and system categorical aid	ComNet - telecommunication issues, wiring,

System					troubleshooting; Real Tech System - telecommunication equipment; Bell Atlantic - telecommunication issues, phone lines; ETNY - telecommunication issues; DEC Alpha Server, Pentium 233 Server, Cisco Routers; CSU/DSU, T1 line
Westchester Library System	24 Hours x 7 Days Support Schedule: Mon-Thurs. 8:30 AM - 9:00 PM Fri 8:30 AM - 6:00 PM Sat 9:00 AM - 6:00 PM Sun 11:00 AM - 6:00 PM	Network Manager employed by WLS	56KB	currently subsidized	Bell Atlantic; NetCom; BayNetworks; Corporate Computer Solutions

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