



**Library Computing Services
Annual Report
July, 1998 - June, 1999**

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<http://www.lias.psu.edu/lcsdesc/report99.htm> or <http://www.lias.psu.edu/lcsdesc/report99.pdf>

Computer & Information Systems
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This report describes the activities and ongoing projects in Library Computing Services (LCS) for the twelve-month period from July 1, 1998 to June 30, 1999. Of major significance during this period was the release of LIAS on the Web to provide a more intuitive interface, and give users easy access to images, sound, full text, and other digital information not readily accessible via the original, character-based Library Information Access System (LIAS).

Other significant projects during the reporting period included the evaluation of commercially available software for replacement of selected components of the LIAS suite of services, and continued support of connectivity for all staff during relocation from Pattee to Paterno Library (and back again) during construction.

LIAS on the Web

In September, 1998, LIAS on the Web replaced the existing character-based, command-line version of LIAS as the default point of access to all LIAS resources and services. The migration to a fully webbed version consisted of two major parts. The first was the creation of a web-based search engine that searches and displays the locally loaded LIAS databases, including The CAT (online catalog), Periodical Abstracts, etc. The second part of the Web LIAS development effort was the creation of a web interface whose purpose was to repackage and deliver a wide range of databases, services, instructional components and self-service components in an easy-to-find format.

Telnet vs. Web. Telnet LIAS remains available as a text-only version to comply with ADA regulations and to accommodate those users who prefer the old, familiar version. As users became more familiar with LIAS on the Web, the dependence on the old, telnet LIAS decreased. At the close of the fiscal year, 783,853 sessions had been established in the Web CAT with 120,883 in Telnet CAT, indicating a clear preference for the Web version (Appendix A. CAT Session Statistics). Note that these figures only show how many times the two versions of The CAT were selected from the Fast Track menu, and do not include staff usage. The majority of Telnet usage continues to come from Libraries staff whose work functions, for example, cataloging, acquisitions, etc. must still be done in the character-based LIAS.

Enhancements. During the course of the year, LCS continued to enhance LIAS on the Web, making it more powerful and robust. Suggestions for changes and enhancement came directly from users, as well as from the University Libraries SWAT team (recently renamed the LIAS Enhancement Team) and the LIAS Faculty Advisory Committee, convened in 1998 by the Vice Provost for Information Technology. As a result of their efforts, LIAS on the Web

The screenshot shows the 'Detailed Search' interface for 'The CAT' database. At the top, there is a navigation bar with links for 'DATABASES & MORE', 'REFERENCE SHELF', 'DO IT YOURSELF', 'INSTRUCTION', 'THE LIBRARIES', and 'OTHER INFORMATION'. Below this is a secondary bar with 'ALL OF THEM', 'THE CAT', 'JOURNALS/NEWS', 'FULL TEXT', 'DESCRIPTIONS', and 'VEL'. A third bar contains 'Basic Search', 'Default Settings', and 'About This Page'. The main heading is 'Database: The CAT' followed by 'Detailed Search'. The search form includes a 'Keyword' dropdown menu, a text input field containing 'child', and a 'Choose Search Type' dropdown menu set to 'All Indexes'. Below this are 'And' and 'Or' dropdown menus, with the second text input field containing '(labor' and the third containing 'labour) 7'. There are two more 'And' dropdown menus and a final text input field. An 'In Library:' dropdown menu is set to 'All Libraries'. A green 'Go!' button is located at the bottom right of the search form. At the very bottom of the page, there is a footer with links for 'Hours', 'What's New', 'Contact Us', 'Help', 'Penn State Home', and 'Intranet'.

Figure 1. The new Detailed Search Page in The CAT

underwent a major face-lift in December, 1998. The new, improved interface eliminated frames, provided more explanatory text, and utilized colored tabs and sub-tabs to assist in navigation. Other features added to LIAS on the Web during the course of the year include:

- The **Library** pull down menu which allows users to limit searching in *The CAT* to the collections of specific libraries.
- The ability to request or recall a book from any Penn State library via the **I Want It** button. Previously, *I Want It* could be used only to request or recall items located on one's own campus. In addition, users can now cancel their requests and recalls if they decide they no longer need an item.
- The **Limit** function to narrow down one's search results by date of Publication, Language, Type of Material (Books, Music, etc.) and Date of Addition to the database.
- A new **Detailed Search** page (Figure 1.) that supports complex searching via drop-down menus of Boolean operators and multiple lines of input. This enables users to combine multiple search arguments into one request, allowing difficult searches to be entered with ease. As part of this effort, the Basic Search page was also redesigned to make it easier to use.
- A **customized Fast Track menu** which displays only the databases that are accessible to the user based on how he/she is connected to the Internet. Not all users can access all databases remotely due to licensing restrictions or problems with third party software. For example, remote users connecting via the CAC server, i.e., a PSU IP address, see a different list than users connecting via AOL.
- The **CAT - Journals & More** database to quickly find information about the journals and magazines that the Penn State University Libraries own.

LIAS on the Web will continue to evolve during the coming year. Two features currently under development are a Change of Address form, and customized LIAS on the Web home pages based on the location of the workstation. The Change of Address form (released on September 7, 1999) will allow users to update their local addresses in the library's patron database via the Web to ensure continued and timely receipt of library notices. Previously, this could only be done by Libraries' staff at staff workstations. The customized LIAS on the Web pages, slated for release in late September, will provide for a quick link to individual library home pages directly from the LIAS home page. For example, users in the Arts & Humanities library will see a link to that library's home page directly from LIAS on the Web, providing easy access to information of particular interest to that library's users.

Fast Track to All Resources. LCS and the University Libraries remained committed to providing better and faster access to a wide variety of information resources. At the end of fiscal year 1998/1999, 200 resources were accessible via LIAS; this is four times the number available at the end of 1997, and eight times the number available in 1996 (Appendix B. Database Timeline). The databases were heavily used, with over one million sessions recorded across all resource in the last six months alone (Appendix C. Fast Track Usage).

Providing easy and efficient navigation of these many resources continues to be a challenge. The *LIAS Fast Track to All Resources* is an alphabetical list containing every database and resource accessible through LIAS.

However, calling this list of 200 items a *fast* track is a misnomer, and alternate methods of selecting resources must be offered. One enhancement implemented in February, 1999, is the ability to present a customized Fast Track menu which displays only the databases that are accessible to the user based on how he/she is connected to the Internet. For example, remote users connecting via the CAC server, i.e., a PSU IP address, see a different list than users connecting via AOL due to licensing restrictions or problems with third party software. Previously, all users saw the entire list of resources even if they could not access them.

Project Summary

Information Access

CD ROM Access. During the course of the year, the CD-ROM databases were moved to a Meridian server and added to LIAS on the Web, providing network access of CDs at any Libraries workstation at all college/campus library locations. Previously, the databases were available only on dedicated workstations and from selected staff workstations. In addition, a number of OCLC and WebSpirs databases were made available on the ERL server, making them accessible across the network at all college/campus locations.

PALCI (Pennsylvania Academic Library Connection Initiative). The Penn State University Libraries is a member of the Pennsylvania Academic Libraries Connection Initiative (PALCI), an organization of private and public academic libraries that was formed in 1996 to foster cooperation among academic libraries in Pennsylvania. The first major PALCI initiative was to create a virtual online union catalog using a Web-based interface to provide Z39.50 searches across multiple vendor systems. The PALCI database, which allows users to search for and request materials from member institutions, was added to the Fast Track in early September. It is still considered to be in test, and only University Park patrons can place requests for PALCI materials at present. This service will be expanded across all Penn State campuses during the coming fiscal year.

Electronic Theses and Dissertations (eTD). Last fall, Library Computing Services (LCS), University Libraries, the Graduate School, and the Center for Academic Computing (CAC) developed the eTD project for the submission and archiving of electronic theses and dissertations at Penn State. Electronic theses and dissertations, which will be accessible via the Web, will enable students to enhance these documents with multimedia features such as video and computer images, and will increase the visibility of student research efforts at the University. During Summer, 1999, four graduate students participated in the pilot study and published their dissertations electronically. The pilot will continue during Fall, 1999 with a new group of graduate students.

DCE Authentication in LIAS. During Summer, 1998, LCS implemented the DCE inter-cell model to authenticate Penn State students, faculty and staff via their PSU Access Account IDs and passwords. Implementation of DCE authentication enabled remote users, i.e., users accessing the LIAS web databases from their apartments or homes away from Penn State, to authenticate as valid Penn Staters and access the licensed databases remotely. However, some authentication in LIAS, for example, access to patron circulation information and the locally loaded LIAS databases, continued to be done via the Penn State nine-digit ID number and last name. Since August 10, 1999, all undergraduate and graduate students are required to authenticate via their Penn State Access IDs and passwords to access the full range of LIAS services. Authentication via the Penn State ID number and last name is no longer supported for students, but is still a valid option for faculty and staff.

Personal Reserve Enhancements. Patrons have long been able to recall materials charged to other patrons. However, with the implementation of automated circulation at all college/campus libraries in 1997, patrons were able to place reserves only for items at their "home" campus, and had to ask staff to request items from other

PSU campuses. In February, 1999, LCS upgraded the personal reserve process to enable patrons to reserve materials from any PSU campus library without staff intervention. In addition, the process was enhanced to recall/locate a single item rather than all items associated with a call number as was the original practice.

Library Operations

PromptCat. PromptCat is a service offered by OCLC that delivers copy cataloging via FTP on a weekly basis for non-serial titles received on a library's approval plan. This service, implemented by LCS and the Libraries in June, 1999, eliminates the manual step of adding catalog records of the items received via the Libraries main approval plan program and reduces the number of duplicate items requested for order since staff find approval plan records in The CAT more quickly.

Direct Posting of Fees. A year ago, LCS worked with the Office of Administrative Systems to directly post library fees to the general deposit accounts of students at the end of each semester. However, Libraries' staff continued to make manual adjustments for any fees that were rejected by the Bursar. During the past year, LIAS end of semester processing was modified to automate the making of these adjustments.

Non-Bibliographic Format. LCS has developed a new format called "Non-Bib" to support speedy input and control by the Acquisitions Department of non-bibliographic records for Memberships, Standing Orders, and Business Records into The CAT database. Using this format, staff can input/edit/delete LIAS records, and use special Form Codes and Input Prompts to add them to The CAT. The LIBRARY command in the telnet CAT was also enhanced to permit selection of "nonbib" since these behind-the-scenes records are not ordinarily visible in The CAT.

Help Desk. 1741 trouble calls were reported to the joint LCS and University Libraries Help Desk between July 1, 1998 and June 30, 1999. Of these, 3096, or roughly half, were resolved by LCS staff, while the rest were handled by University Libraries I-Tech staff.

Hardware and Network Projects

Network Printing. Networked printing of laser-quality pages from Libraries workstations was implemented in early November, 1998. After a successful pilot in the Gateway and Life Sciences libraries in Pattee Library, network printers were installed at 14 library locations at University Park. Letter-size laser copies are now eight cents a single-sided sheet and twelve cents a double-sided sheet.

Pollock Laptop Library. The University Libraries Undergraduate Library on Pollock Road has been reconfigured into a "laptop" library open 24 hours, 7 days a week. Students can check out a laptop computer, bring their own, or use the space to study alone or in groups. LCS designed and installed the network to support the use of the laptops, and also set up all authentication on the laptops which can be checked out by anyone with a valid PSU student ID. The "open port" concept will be extended to all floors of the Pattee/Paterno complex as well as the branch libraries at University Park during the coming year.

PC Upgrades. LCS staff continued to work with the Libraries I-Tech staff to install an additional 100 workstations at University Park, and also upgraded all public workstations at the campus libraries, at least

doubling the number of public workstations at each location. By the end of fiscal year 1998/1999, there were 450 public and 700 staff workstations across the University Libraries system.

Network Upgrade. LCS upgraded the Libraries backbone to Gigabit Ethernet during the reporting period.

Library Construction. As the construction and renovation project in the University Libraries entered its final stages, LCS operations staff was heavily involved in providing ongoing connectivity for Libraries' faculty and staff as they relocated to temporary or new, permanent work areas. In addition, LCS systems engineering staff continued to spend significant time working with the Libraries to ensure adequate data connections and support for future networking, telecommunications, automation, etc. needs in both Paterno and Pattee Libraries. As renovations continued and library collections were shifted to new locations, LCS also continued daily updating of The CAT to reflect the new locations of materials.



Figure 2. The Destruction of LCS (July 1999).

Finally, LCS experienced some moves of its own, as staff were relocated to temporary office spaces during April, 1999 while sprinklers were added, the ceiling was lowered, the lobby disappeared, a new wall was built, and the entire

LCS area was repainted and recarpeted (Figure 2). Staff moved back to their permanent locations in August, 1999.

Priorities for 1999/2000

LIAS Integration with Commercial Software. During the past year, the University Libraries and LCS evaluated the LIAS suite of services, and investigated the possible use of commercially available software in order to maximize staff resources and provide the best possible information technology to the University community. After a pre-qualification process to reduce the number of vendors to three that met PSU's requirements, the Libraries initiated a full RFP process for the three companies. LCS staff was heavily involved in preparing the RFP, as well as responding to it, and in the vendor visits and demonstrations.

Base upon the evaluation, the University signed a letter of intent and entered into negotiations with one of the companies. The new software will replace those LIAS components that support the internal operations of the Libraries, for example, the online catalog, circulation, cataloging, acquisitions, and so on. Assuming that the contract will be signed during September, 1999, the key functions should be tested and operational by September, 2000. This is an ambitious schedule, and consequently, the integration of LIAS with the commercial software will be the top priority for LCS for the coming year.

In order to support the new software, LCS will gradually replace its existing servers with a Compaq DS20 with two CPUs and two Gigabytes of main memory (October, 1999) to serve as a development server, a Compaq GS140 with eight CPUs, eight Gigabytes main memory, and a one-quarter Terabyte hard disk test server

(January, 2000), and a Compaq GS320 with 16 CPUs, 16 Gigabytes main memory, and a one-quarter Terabyte hard disk production server (mid-year 2000).

Authority Reconciliation. The Libraries will shortly be sending out an RFP to various vendors of authority control services. A copy of the bibliographic records in The CAT will be extracted and sent to the vendor, who will then use their software and their authority files to update the headings on the PSU records to current, valid forms. The vendor will return an updated file of bibliographic records (which will be re-loaded into LIAS CAT) and a file of matching authority records which serve as the basis for ongoing quality control of headings. The work is likely to take 4-6 months and needs to be completed by April 2000. LCS has been involved in the analysis of the project and the preparation of the RFP, and will work closely with the Libraries to ensure that the data can be extracted from, and then re-loaded into, The CAT with minimal manual intervention and no disruption of ongoing updating of the bibliographic database.

Reconciliation of Circulation (ICP) and Bibliographic Databases. LIAS bibliographic data, and its associated holdings and circulation data, reside in a number of databases and are linked by item (barcode) number. Due to a variety of circulation and cataloging practices during the past twenty years, not all item records have matches in the bibliographic databases, and not all bibliographic records have matches in the circulation databases. It is imperative that the discrepancies be reconciled to ensure that all holdings, circulation and bibliographic data are correctly migrated to the new software. LCS will automate the reconciliation process where possible.

Self-Charge Workstations. The University Libraries have purchased 3M Check-Out workstations which will offer patrons a self-charge option that automatically desensitizes materials for passing through security as it charges out materials and produces due-date slip. This will eliminate long waits at the circulation desks. The self-charge process was undergoing final testing at the close of the fiscal year, and will be installed in the Libraries during September, 1999.

LIAS Location Code Changes. Upon completion of the construction and renovation of the Paterno/Pattee Library complex, the library's collections are being reorganized into subject libraries to allow for more efficient researching. As a result, the current LIAS location code structure must be modified to support the new "libraries within libraries" concept. In addition, LCS and the Libraries must determine how to extend the multiple levels of location information into the new system.

Integration of Annex Locator Codes and LIAS CAT Records. The Libraries house a large number of infrequently used materials in off-site storage buildings, referred to as the Annex. To maximize storage space, the Annex materials are shelved by size and assigned a "locator code" to assist staff in retrieving the materials. This data, which has been maintained in a separate Q&A database which is not Y2K compliant, must be integrated into the LIAS CAT bibliographic records.

LIAS on the Web. LCS will continue to enhance LIAS on the Web even as it integrates it with the new, commercial software. As mentioned earlier in the report, two features currently under development are a Change of Address form, and customized LIAS on the Web home pages based on the location of the workstation. In addition, LCS and the Libraries will continue to redesign the Fast Track to make it more "usable".

VEL Upgrade. LCS must upgrade its current version of the Virtual Electronic Library (VEL) to the new Java-based VEL recently released by OCLC.

Hardware and Network Upgrades. LCS will work with the Libraries to determine schedules for activating

open ports at the University Park libraries as well as for installation of multimedia workstations. In addition, LCS will continue to install additional public workstations as areas of Paterno/Pattee that are currently being renovated are opened to the public.

Time Clock Software. LCS will work with Libraries staff to provide necessary programming support for its new Time Clock software.

Tri-University Authentication and Authorization Project (TRICAAP). LCS and the University Libraries will continue to participate in TRICAAP, a joint project of Penn State, the University of Minnesota, and Ohio State University (with the University of Wisconsin participating as an observer). TRICAAP's objective is to demonstrate a secure interoperable authentication and authorization architecture which allows members of the project institutions, both inter and intra-institutional, access to restricted materials and distributed computing resources. For example, this project will enable authorized users at the other institutions to connect and authenticate in order to gain appropriate access to authorized PSU resources. Each campus will maintain a registry of users and groups in a campus authorization system. Authentication and authorization information will be carried between campuses using DCE network credentials.

Year 2000

In accordance with the PSU Year 2000 plan of attack, Library Computing Services has developed a Y2K plan to ensure that all of its hardware and software is Year 2000 compliant. The majority of LIAS code is already compliant, and all remaining code, as well as any other software or hardware upgrades, will be compliant by September 1, 1999. Jack Orlandi, Lead Systems Analyst, is the LCS Year 2000 officer.

Staff Development

Conferences, Workshops, etc.

Eric Ferrin Z39.50 Implementor's Group, Palo Alto, CA, 3/16 - 3/18
Brainshare, Salt Lake City, UT, 3/22 - 3/26
CIC Library Automation Directors, Chicago, IL, 4/15 - 4/16
Indiana Benchmarking, Bloomington, IN, 4/20 - 4/21
Dell Visit, Austin, TX, 5/24 - 5/26
IPIG, St. Louis, MO, 6/2 - 6/3
Rutgers Site Visit, 6/9
UCLA Site Visit, 6/11
Notre Dame Site Visit, 6/16

Michael Bender COMNET, Washington, D.C. (1/26 - 1/27)

Eric Ferrin, Michael Bender, Dace Freivalds, Lynn Garrison, Sylvia MacKinnon, Wayne Stump
American Library Association Midwinter Meeting, Philadelphia, PA (1/31-2/1)

Eric Ferrin, Sylvia MacKinnon, Jack Orlandi

American Library Association Annual Meeting, New Orleans, LA (6/25 -6/29)

LCS Staff

Ergonomics Awareness and Back Safety Workshop, 6/28 (11/10)

Publications

MacKinnon, Sylvia and Michael Bender, “Penn State Libraries Tackle Staggering Task with Powerful Server Technology”, *Compaq Higher Education*, May 1999, page 13.

Appendix A. The CAT Session Statistics

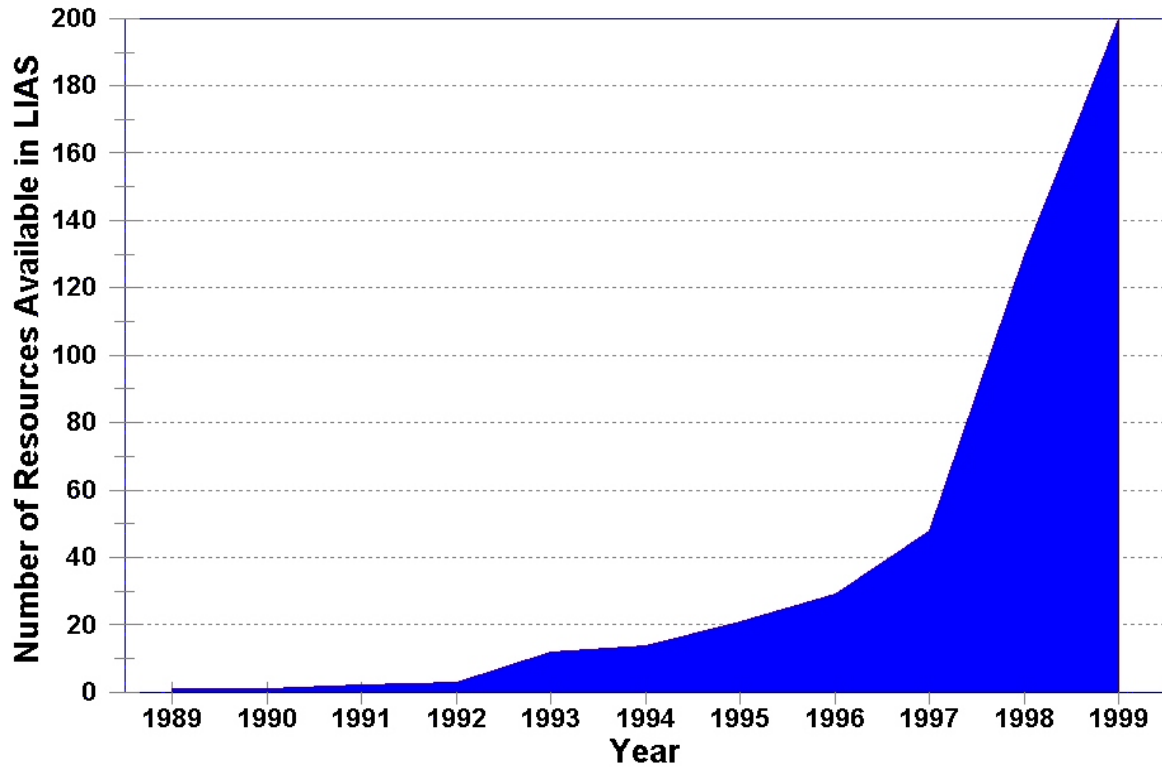
The CAT Session Statistics -- Number of Times the CAT was Accessed, July 1998 - June 1999

	1998						1999						Total
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Web CAT ¹			98,397	82,025	88,569	51,203	67,668	94,701	96,846	104,452	59,720	40,272	783,853
Telnet CAT	36,270	30,324	8,370	8,039	9,078	5,068	3,419	4,549	4,811	5,504	3,420	2,031	120,883
Total	36,270	30,324	106,767	90,064	97,647	56,271	71,087	99,250	101,657	109,956	63,140	42,303	904,736

¹Web CAT was released September 17, 1998.

Appendix B. Database Timeline

LIAS Resource Timeline 1989 - 1999



Appendix C. Fast Track Resource Usage Statistics

Fast Track Resource Usage Statistics, 1999

	Jan 99	Feb 99	Mar 99	Apr 99	May 99	Jun 99	1999-to date
Total No. of Sessions Across All Resources	136,194	211,681	210,834	232,572	124,255	87,142	1,002,678
ABI/INFORM (business)	2,644	3,740	3,838	4,108	2,580	1,824	18,734
Academic Universe	1,540	3,199	3,012	3,341	1,294	1,134	13,520
AccessUN	63	118	126	99	62	50	518
AccuNet/AP Photo Archive	0	0	0	19	197	124	340
ACM digital library (computer science)	230	317	305	343	282	169	1,646
ACS E-Journals (chemistry)	0	0	282	321	387	269	1,259
Aerospace Database	127	192	186	226	141	197	1,069
African American Biographical Database, 1790-1950	101	200	181	185	60	46	773
AGRICOLA (agriculture & related sciences)	1,671	2,346	2,389	2,313	1,281	724	10,724
AIDSLINE	0	0	0	40	62	29	131
AIP & APS E-Journals (physics)	0	0	102	154	200	127	583
America: History & Life	325	892	646	689	286	238	3,076
The American Poetry Database	0	0	0	0	76	74	150
Anthropological Literature	226	582	773	575	345	183	2,684
Applied Science and Technology Abstracts	645	784	723	691	320	234	3,397
Aquatic Sciences	331	384	462	595	164	147	2,083
ArchivesUSA (manuscript collections)	94	144	146	131	80	58	653
Art Abstracts	215	712	727	755	174	156	2,739
ARTFL (French literature)	35	39	79	32	17	22	224
ArticleFirst	1,158	2,186	1,928	1,993	794	661	8,720
Arts and Humanities Citation Index	0	0	107	225	92	68	492
Associations Unlimited	74	116	185	165	69	61	670
Avery (architecture)	344	539	468	486	162	55	2,054
Bibl. of the History of Art	56	172	172	188	119	40	747
Bibliography of Asian Studies	47	65	124	110	40	44	430
Big Ten Library Catalogs	112	171	156	94	102	106	741
BIOETHICSLINE (Ethics in health care & biomedical research)	0	0	0	57	154	61	272
Biography and Genealogy Master Index (BGMI)	101	179	169	220	112	131	912
Biological and Agricultural Index	1,064	1,405	1,622	1,531	359	290	6,271
Books in Print	977	1,377	1,528	1,298	941	842	6,963
Book Review Digest	376	402	200	217	64	70	1,329
Business Periodicals Index	0	0	0	0	0	0	0
CAB Abstracts (agriculture & related sciences)	420	724	668	524	457	247	3,040
CASSI (Chemical Abstracts Service Source Index)	215	160	46	40	92	47	600
CAT - PSU Libraries On-line Catalog	71,087	99,250	101,657	111,975	63,450	42,303	489,722
Center for Research Libraries	69	205	235	160	116	107	892
CenStats	0	0	22	60	24	61	167
Centre Daily Times Index	149	465	377	333	206	124	1,654

CINAHL (nursing & allied health)	575	690	749	675	492	379	3,560
CommSearch (communications studies)	716	1,037	607	736	122	134	3,352
Community of Science	90	165	163	132	79	82	711
Compendex (engineering)	1,512	1,734	1,938	2,034	1,612	1,197	10,027
Congressional/Legislative Resources	176	480	440	496	103	139	1,834
Consumer Health (Medline plus)	0	0	0	115	198	145	458
Contemporary Authors	214	336	330	410	203	128	1,621
Contemporary Literary Criticism Select	128	278	338	428	121	73	1,366
Contemporary Women's Issues	0	0	0	115	196	166	477
ContentsFirst (journal tables of contents)	614	907	679	601	320	227	3,348
Corpus of Middle English Prose and Verse	0	0	0	23	25	9	57
Current Citations (journal table of contents)	0	0	0	0	0	54	54
Current Contents (recent journal contents)	0	0	0	0	140	385	525
Current journals and check-in dates (Univ Park)	356	622	593	591	292	219	2,673
Daily Collegian Index	110	368	276	281	113	66	1,214
Dickinson School of Law Library Catalog	80	144	300	268	106	136	1,034
Dictionary of Literary Biography	87	155	127	155	108	52	684
Dissertation Abstracts	434	687	614	621	585	437	3,378
DOE Information Bridge (technical reports)	107	90	82	77	52	58	466
Dow Jones Interactive	834	1,259	1,627	1,463	906	781	6,870
EconLit (economics)	425	375	574	658	333	212	2,577
Editions and Adaptations of Shakespeare	0	0	0	0	26	8	34
Education Abstracts	647	1,265	997	874	371	381	4,535
Electronic Journals	727	1,287	1,386	1,316	594	488	5,798
Electronic News Sources	240	605	651	530	194	201	2,421
Electronic Reserves	1,588	1,514	1,163	1,205	832	520	6,822
Encyclopaedia Britannica	514	1,098	991	1,294	631	276	4,804
English Short Title Catalogue (LIAS searching)	29	67	94	138	66	46	440
English Verse Drama	0	0	0	0	34	14	48
Environmental Sciences	692	1,107	1,046	1,065	347	249	4,506
ERIC (education)	1,303	2,200	1,861	1,790	1,002	1,071	9,227
ERIC Digest	90	198	154	158	74	135	809
ERIC Wizard	82	218	171	118	100	118	807
OCLC ERIC	1,085	1,696	1,629	1,473	918	983	7,784
FactSearch (current statistics)	122	455	424	397	108	59	1,565
Final Exam Schedules for University Park	32	112	156	108	48	10	466
Gale Business Resources (Integrated)	304	516	472	388	230	138	2,048
General Science Abstracts	236	478	503	453	145	100	1,915
GEOBASE	236	280	240	298	137	86	1,277
GeoRef (geoscience literature)	453	507	510	677	485	295	2,927
Gopher (Internet access)	0	0	3	2	0	0	5
GPO Access (bills, debate, regulations)	13	43	72	49	19	19	215
GPO Monthly Catalog	14	44	67	34	22	28	209
Government Documents/Maps	59	117	128	108	49	53	514
HealthSTAR (health policy and administration)	0	0	0	63	124	93	280
Historical Abstracts	216	575	542	579	190	134	2,236
HRAF-Human Relations Area Files (anthropology)	100	203	298	205	72	40	918

HSRPROJ (health services grants and contracts)	0	0	0	5	11	7	23
HSTAT (clinical practice guidelines, treatment protocols)	0	0	0	29	62	35	126
Humanities Abstracts	134	474	375	417	171	136	1,707
IBIDS (Dietary supplements database)	0	0	0	22	43	23	88
IBZ (International Bibliography of Periodical Literature)	77	160	146	145	79	67	674
IEEE Electronic Library (IEL)	0	0	0	418	722	566	1,706
Index to Legal Periodicals & Books	122	260	222	233	41	49	927
INSPEC	113	120	173	184	287	179	1,056
International Index to Music Periodicals	47	112	84	151	37	45	476
IOP E-Journals (physics)	0	0	63	87	81	56	287
Johns Hopkins Guide to Literary Theory and Criticism	0	0	0	104	82	43	229
JSTOR (full text journal articles)	1,235	2,390	2,622	3,007	1,160	753	11,167
LEXIS-NEXIS Academic Universe	1,919	3,763	3,398	4,023	1,592	1,249	15,944
Libraries by Geographic Location	27	38	70	52	49	38	274
Library Literature	289	524	428	481	238	177	2,137
Literary Full Text Databases	219	512	509	608	203	161	2,212
Mass Media Articles Index (1984 to date)	439	1,215	1,171	1,276	376	186	4,663
Materials Science	406	468	534	684	420	461	2,973
MathSciNet	166	186	182	204	173	124	1,035
Mechanical Engineering Abstracts	122	141	152	166	90	95	766
Medianet (Penn State's Audiovisual Database)	269	426	347	392	283	243	1,960
MEDLINE (medicine)	3,706	4,791	4,143	5,450	3,523	2,825	24,438
Meteorological and Geostrophysical Abstracts	60	148	87	132	45	67	539
MLA Bibliography (literature)	774	1,272	1,462	2,389	813	514	7,224
MUSE (full text journal articles)	724	1,523	1,695	1,746	603	420	6,711
NASA Technical Report Server	54	69	67	77	51	46	364
Newspaper Abstracts	1,065	2,563	1,886	2,265	574	439	8,792
New Titles (recent additions to The CAT)	100	121	126	98	50	41	536
NTIS (engineering, science & social sciences)	594	639	715	618	432	301	3,299
OCLC (FirstSearch databases)	470	588	569	522	428	291	2,868
Old English Corpus	0	0	0	22	29	14	65
OT BibSys (Occupational Therapy Bibliographic System)	0	0	0	71	89	15	175
PAIS (contemporary issues)	139	349	304	308	109	77	1,286
PALCI (PA Academic Library Connection Initiative)	49	256	229	332	194	127	1,187
PapersFirst (conference papers)	164	175	147	183	147	129	945
Patents, U.S. and Foreign	107	70	95	58	126	97	553
Patrologia Latina (history of Latin Christianity)	0	0	0	0	19	17	36
PENpages - PSU Ag Extension Database	16	42	41	53	33	14	199
Periodical Abstracts	8,987	18,230	17,108	20,417	5,844	4,283	74,869
Peterson's GradSearch	87	114	112	96	101	78	588
Peterson's UndergradSearch	48	118	142	156	54	52	570
PolicyFile (Public Policy Research & Analysis)	99	265	262	241	119	82	1,068
Pollution Abstracts	49	150	173	166	67	31	636

POPLINE (worldwide population/health & family studies)	0	0	0	33	58	49	140
ProceedingsFirst (conference papers)	74	88	73	114	106	91	546
Proquest Direct (newspapers, magazines, business)	3,330	7,203	7,133	8,428	3,551	3,046	32,691
PsycINFO (psychology)	4,781	7,148	7,533	7,436	3,364	2,577	32,839
Reader's Guide to Periodical Literature	193	413	270	210	110	61	1,257
RILM Abstracts (musical literature)	63	164	132	182	38	40	619
RLIN - Research Libraries Info Network	356	486	477	508	606	463	2,896
Roget's Thesaurus	9	22	12	23	15	14	95
Science Citation Index	0	0	345	439	287	268	1,339
Science's Next Wave	37	67	74	78	18	30	304
Social Science Abstracts	875	1,824	1,619	1,360	567	384	6,629
Social Science Citation Index	0	0	119	158	105	105	487
Sociological Abstracts	474	1,269	1,120	1,319	548	241	4,971
SPACELINE (Space life sciences)	0	0	0	16	23	22	61
SPIN Database (physics)	0	0	39	78	75	93	285
Springer-Verlag Journals (full text science articles)	497	857	736	862	332	250	3,534
Statistical Universe	0	0	0	36	117	110	263
STAT-USA Internet	72	215	115	73	37	12	524
SwetScan (journal tables of contents)	358	522	394	431	476	299	2,480
TOC - Table of Contents for Journals, 1990+	143	117	123	69	19	22	493
Telnet Access to Locally Mounted Databases	283	396	201	94	84	57	1,115
TIPS - DIAL ACCESS	0	0	0	819	2,722	131	3,672
TOXLINE	0	0	0	16	69	25	110
UnCover (current awareness, general)	727	1,186	1,008	953	936	695	5,505
VEL - CIC Virtual Electronic Library	261	403	421	335	179	151	1,750
Water Resource Abstracts	61	118	139	95	76	81	570
Web of Science	0	0	550	869	530	558	2,507
World Almanac	44	159	122	144	46	33	548
WorldCat	327	664	644	647	540	443	3,265
World News Connection	206	427	271	318	68	78	1,368
World Wide Web	411	684	689	847	618	313	3,562
Total Sessions	136,194	211,681	210,834	232,572	124,255	87,142	1,002,678

Appendix D. LIAS Z39.50 Server Statistics

LIAS Z39.50 Server Statistics Summary July, 1998 - June, 1999	
Number of Sessions	460,638
Number of Clients	17,591
Maximum Session Length	384 minutes
Minimum Session Length	<1 minute
Average Session Length	6 minutes

Who Is Using the LIAS Z39.50 Server? Top 20 Clients Based on Frequency of Use, January - June, 1999		
No. of Sessions	Client Name	Comments
17360	DIOGENES.LCSPUB.PSU.EDU	LIAS Z39.50 client - CIC VEL
14278	LIBDBS.DOIT.WISC.EDU	University of Wisconsin - CIC VEL
11256	MIMI.CC.LEHIGH.EDU	PALCI
10836	LIBRARY.HKU.HK	Hong Kong
9654	USTLIB.UST.HK	Hong Kong
9329	RS7.LOC.GOV	Library of Congress
8503	TIGGER.CC.UIC.EDU	University of Illinois at Chicago - CIC VEL
4321	HAMLET.LIB.UMN.EDU	University of Minnesota - CIC VEL
4217	HKBULIB.HKBU.EDU.HK	Hong Kong (again!)
3619	CARAVAN.LIB.UIOWA.EDU	University of Iowa - CIC VEL
3072	STELLA.UGL.LIB.UMICH.EDU	University of Michigan - CIC VEL
2711	131.104.66.122	
2663	WWW.BIBLINAT.GOUV.QC.CA	Bibliotheque nationale du Quebec, Canada
2523	LINCOLN.LIBRARY.UIUC.EDU	University of Illinois at Urbana-Champaign - CIC VEL
2412	PCLIB17.BCC.BILKENT.EDU.TR	Turkey
2184	STELLA.UGL.LIB.UMICH.EDU	University of Michigan - CIC VEL
2058	PCLIB50.BCC.BILKENT.EDU.TR	Turkey
1962	UGLY-UNDER-2.DIAL.IDIOM.COM	
1791	NODE7.LIBRARYASSOCIATES.COM	
1711	150.199.190.166	

Appendix E. LIAS Availability

System Availability Based on University Libraries Hours, July 1998 - June 1999¹													
	1998						1999						Totals
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
DOWNTIME(In Hours)													
Air Conditioning	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical													
Scheduled Outages	0	0	0	0	0	0	0	0	0	0	0	0	0
Unscheduled Outages	0	0	0	0	0	0	0	0	0	0	0	0	0
LIAS Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware													
CPU Failure	0	0	0	0	0	0	0	0	0	0	0	0	0
MCU Failure	0	0	0	0	0	0	0	0	0	0	0	0	0
Disk Failure	0	0	0	0	0	0	0	0	0	0	0	0	0
HSC Failure	0	0	0	0	0	0	0	0	0	0	0	0	0
Cluster Interconnect	0	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance													
	0	0	0	0	0	0	0	0	0	0	0	0	0
Software													
LIAS System	0	0	0	0	0	0	1	0	0	0	0	0	1
Operating System	0	0	0	0	0	0	8	0	1	0	1	0	10
LIAS Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Downtime	0	0	0	0	0	0	9	0	1	0	1	0	11
TOTAL AVAILABLE HOURS													
Maximum Available	400	341	457	472	440	343	364	408	406	437	361	343	4772
Total Downtime	0	0	0	0	0	0	9	0	1	0	1	0	11
Uptime	400	341	457	472	440	343	355	408	405	437	360	343	4761
AVAILABILITY IN %	100	100	100	100	100	100	97.5	100	99.7	100	99.7	100	99.7

¹Availability percentages are based on the maximum available hours at University Park Libraries and may not be a true reflection of LIAS availability at the CES campus libraries. LIAS availability at the campuses can be impacted by network downtime and other regional factors. LIAS is available for searching twenty-four hours a day, seven days a week.