



Digital Library Technologies (DLT) Annual Report, July 2005 - June 2006

CONTENTS

Information Access

OS Migration

Research and Development

Maintenance and Support

Infrastructure

Future Initiatives

Day to Day Operations

Staff Development

Appendices

A. LIAS Statistics at a Glance

B. LIAS E-Resource Usage

This report describes the activities of Digital Library Technologies (DLT) during the past year. Significant accomplishments include a large increase in the number and quality of information resources available through LIAS and significant additions to the emerging Digital Library Infrastructure (DPubs, Fedora, and Day Communiqué). The past year also saw continued effort on DLT's part to enhance and customize the delivered Sirsi Unicorn library management software to meet the Libraries' needs.

Produced by Digital Library Technologies, The Pennsylvania State University, E3 Paterno Library, University Park, PA 16802

<http://www.dlt.its.psu.edu/Report.pdf>

Information Access

New Databases/Resources. Seventy-four new databases and other electronic resources in a wide variety of subject areas were made available via LIAS during 2005/2006, bringing the total number of e-resources accessible via LIAS to 550+.

A sampling of new electronic resources added in 2005/2006 includes: Smithsonian Global Sound, Women's History Online, Scientific American Archive Online, Pennsylvania History, GalleryWatch, Homeland Security Digital Library, Cities of the World, American Mineralogist, America's Historical Newspapers, Wiley Encyclopedia of Telecommunications, MIT Sloan Management Review, Television and Cable Factbook Online, CQ Supreme Court Collection, American Broadside and Ephemera, Early American Imprints II, Kirk-Othmer Encyclopedia of Industrial Chemistry and Early Civilizations in the Americas.

Addition of Large Bibliographic Files to The CAT. For the last few years, *The CAT* has been enhanced by the purchase of collections of bibliographic cataloging data from external sources. Some of these collections provide full access to materials in the University Libraries for the first time. Access to these materials was previously minimal. For example, a large microfilm collection may have thousands of unique articles or documents that were previously identified in *The CAT* by only one bibliographic record – the title of the collection itself. By purchasing the records that identify each article or document, the usability of the microfilm collection has been greatly enhanced.

This means of enriching *The CAT* with pre-cataloged collections will continue. In FY 2005/2006, more than 99,000 titles were added in this way.

Did You Know?

99,119 bibliographic records were loaded into The CAT in 2005/2006:

Digital Evans/Antiquarian Society	36,304
Eighteenth Century Collections Online (ECCO), Series 4, Literature and Language	34,995
Eighteenth Century Collections Online (ECCO), Series 1, History and Geography	10,889
History of Education	3,535
NAXOS Music Library	3,488
Alexander Street Press: North American Women's Letters and Diaries	463
ICPSR	445
Alexander Street Press: Black Drama	154
NetLibrary Backfile	8,065
IMF Staff Country reports	333
NewsBank	448

DPUBS, Digital Publishing Software. DLT is working with Cornell University on a Mellon Foundation Grant to extend Cornell's Project Euclid software, which will provide software to support electronic publication from article submission to publication/access of the article. DLT is involved in developing/debugging the process of installation, testing the software on multiple platforms and implementation of Fedora APIs to support a Fedora repository for DPubs.

OS Migration

TRU64/VMS Migration. DLT spent a large part of the year migrating from the Tru64/Unix and VMS platforms to Solaris 9. This impacted all system and library applications supported by DLT. Systems applications that were moved included, among others, NIS, DNS, Email and WorkStation Support. Some of the library applications that were moved consisted of Unicorn (the Library Management System including The CAT), E-Resource List support, Alias (Persistent URL Software), and CIC Virtual Electronic Library.

Windows Migration. DLT moved several library applications from Windows servers to Solaris, made possible because these applications are supported on the Solaris platform. Windows applications that were moved to Solaris included ContentDM (Digital Management Collection Software), ColdFusion and Ezproxy (the proxy server for licensed content). This move allowed DLT to provide a more robust environment for these library applications.

Research and Development

Fedora. DLT installed the Open Source repository software, Fedora, to support work with the DPubS Mellon Foundation grant. The Fedora APIs will be used to support a Fedora repository for the DPubS software. DLT is also investigating Fedora for use in supporting a University-wide Repository.

WebAccess/Friends of Penn State. DLT worked with Applied Information Technologies (AIT) to convert authenticated access to library applications to WebAccess. DLT implemented a Friends of Penn State application so that non-University library patrons can access library functions like renewing books online.

Federated Searching. DLT worked with the Library to implement a new service, MultiSearch, which uses MetaLib, a federated search engine from ExLibris. MetaLib software allows users to cross-search databases and view merged result sets. The MultiSearch capability was released before spring semester 2006.

MetaLib. Several development activities were completed using the MetaLib software, APIs and XServer. A searchable A-Z list of full text journals was implemented from the Journal list in SFX (journal linking software). DLT created an application using the XServer features of MetaLib to search and display items in the Centre Daily Times Index, a database that supports Z39.50 searching.

Oracle. DLT is developing a new application to manage information about workstations supported by DLT, using the HTMLDB tool from Oracle. All non-Unicorn databases have been converted to Oracle 10g, ensuring that these resources are using the latest version of Oracle. DLT is working with the Library staff to convert Coldfusion/MS Access applications to ColdFusion/Oracle applications.

DLXS. DLT upgraded a test and production environment with the latest version of Digital Library Extension Server (DLXS), a foundation/framework for digital libraries. The Library and DLT are working together to migrate the Special Collections Finding Aids into DLXS. These will be made available as part of the Digital Library Infrastructure in the coming year.

Alumni Library. DLT worked with the University Library and Alumni Offices to create the "Alumni Library" Web Site to give access to electronic resources provided by Proquest and Project Muse for members of the Alumni Association.

New Position. DLT has added a new Programmer/Analyst whose primary focus is to work with staff in DLT and the University Libraries' Information Technology department on Oracle database applications

Software Investigations. DLT is investigating several Open Source products to support the Library's needs:

- WebCollab: Project management software
- Z39.50 Access to ContentDM

Maintenance and Support

Sirsi Unicorn Management and Maintenance. During the past year a significant amount of time was dedicated to migrate Unicorn to the Solaris platform. After successfully migrating Unicorn, DLT modified The CAT to use WebAccess for authentication of Library patrons, worked with the Library staff on implementation of the Java Workflows client for staff access to Unicorn, and began work on the upgrade to the latest Unicorn version of GL3.1 and Oracle 10g. The upgrade to GL3.1 and Oracle 10g will be completed the weekend of August 19.

Infrastructure

New Hardware and Upgrades. DLT performed the following during FY2005/2006:

- Added 1 additional enterprise level SUN server to support testing of applications and redundancy as well as disaster recovery. This server is located in an alternate computing facility.
 - SUN E4900 with 8 dual core Ultra-Sparc processors, 32GB of Memory and SAN attached storage.
- Added an H/P Storageworks Enterprise Virtual Array (EVA) that provides an additional 67 Terabytes of disk storage for backup and disaster recovery.
- Added an H/P tape robot located at disaster recovery site.
- Added 2 additional HP Intel-based servers running Windows 2003
 - Servers utilized for domain controllers at disaster recovery site.
- Upgraded 5 Intel-based servers running Windows 2003.
- Added Foundry Networks wireless hardware (approximately 35 access points) to enhance coverage in Pattee and Paterno Libraries, including the Stacks.
- Added 1 Cisco hardware load balancer to improve Web server redundancy for use with the content management initiative with the Libraries.
- Upgraded 225 LIAS public PCs at University Park.

Help Desk. 3,459 trouble calls were reported to the joint DLT and University Libraries Help Desk from July 2005 through June 2006.

Future Initiatives

*Digital Library Technologies
Annual Report, July 2005- June 2006*

Disaster Recovery Planning. DLT will be working closely with Emerging Technologies to test disaster recovery scenarios for off-site replication of data and server systems to ensure minimal, if any, downtime if an unrecoverable failure of systems in the DLT computer room occur. DLT is also working to integrate its Disaster Recovery plan with all of ITS.

CMS, Day Communiqué. DLT is working with the staff of University Libraries to implement a Content Management System, Day Communiqué, to support the Library's public and private Web sites. DLT has participated in the training for the Authoring system and system administration and has been involved in the initial design of the templates.

Unicorn. DLT is in the initial planning stages of migrating Unicorn to Unicode. DLT is working closely with the library management system vendor to convert the Unicorn database to a Unicode compliant database. Moving to Unicode provides an enhanced searching mechanism for multilingual text.

Storage and Archiving Hardware. DLT will add additional SAN storage to support the Libraries digital scholarly publishing efforts as well as ever expanding digital collections. This will also add the technology for "true archiving" of data; the first attempt to have an upgrade path that will not be dependent on the type of storage media.

Windows Server Hardware. DLT will upgrade several Intel-based servers and explore alternatives to these systems. This exploration will include rack and blade server technologies to replace current single cabinet floor standing models, and the advantages of Opteron based technologies for server virtualization.

Software Monitoring and Recovery Tools. DLT will continue to test products in attempts to improve efficiency in updating, inventory, and recovery of desktop systems.

Diversified Operating Systems. DLT will continue to investigate other operating system platforms in an attempt to lessen the dependency on the Windows Server and Workstation platform. Platform examples are: Novell Netware, SUN Rays, Macintosh and Solaris X86.

EMAIL and SPAM Software. DLT will continue to upgrade email and Web-mail capabilities for the Libraries including spam filtering. Current plans include moving email and spam filtering software from the current VMS platform to Solaris to be able to eliminate the current dependency on VMS, thus reducing maintenance costs.

Institutional Repository. DLT will be looking at Open Source repository software to support a University repository.

Day to Day Operations

Ongoing Support. The following tasks are not considered new but cover support for the technologies that have been implemented.

- Server systems monitoring and updating, as needed
 - 2 Enterprise level SUN Servers
 - 1 16 processor
 - 1 8 processor

- 1 Development SUN Server
- 2 Mid Tier SUN Solaris servers
 - 8 processors each
- 1 Entry Level SUN Server for Cold Fusion Applications
- 25 Intel-based Windows Servers
 - Several multi-processor
- 2 Linux Servers
- 1 H/P Single Alpha processor VMS Server
- 3 H/P Enterprise Virtual Arrays (EVA's) 121 Terabytes
 - 1 12 Terabyte Fiber Channel drives
 - 1 42 Terabyte Fiber ATA drives
 - 1 67 Terabyte Fiber ATA drives
- Helpdesk Support
 - Maintain all DLT and Libraries desktop hardware (faculty, staff and public access) totaling approximately 1,600 workstations, including life-cycle activities and salvage.
- Networking for all UP Libraries
 - Maintain all hardware
 - 800 open port (public access) connections
 - Public Wireless access at the Pattee and Paterno Library (all floors), Physical and Mathematical Sciences Library and Pollock Library.
 - All faculty, staff and public (student) wired ports
- Backup of all systems to tape
 - 3 tape robots
- Assist development staff in the installation of new programming environments and systems as needed.

Staff Development

During the past year, DLT staff participated in a total of 4,180 hours of professional development activities. The activities ranged from self-paced reading, completion of Web tutorials, and hands-on exploration of new software, to more formal activities such as ITS' Teaching and Learning with Technology seminars, HRDC and Mastering Supervision classes, and even some week-long workshops at locations other than PSU. Topics that DLT staff studied during the year included: Oracle, XML, XSLT, SQL,

Day Communiqué, Solaris, and more. DLT staff also attended and participated in a number of University Libraries Technology Forums and presentations on new software services.

DLT Professional Development Activity

- # 4,180 total hours
- # 201 Conferences/Meetings
- # HRDC Training - 12 classes
- # Web-based Training – 12 courses
- # Courses: Perl, Day Communiqué, MS Server 2003, Solaris, Oracle, XML, XSLT and others

Appendix A. LIAS Statistics at a Glance

Did You Know That ...

- 74 new databases and resources were made available through LIAS during 2005/2006.
- 3.9 million electronic resource “sessions” were logged by users in 2005/2006.
- The CAT accounted for 32% of LIAS e-resource usage during 2005/2006.
- 3,459 Helpdesk tickets were reported and resolved.
- 358,289 bibliographic records were added to *The CAT* in the last two years, a 13% increase

2005/2006 in Numbers...

Databases and Other E-Resources

Number Available 550+ (10% increase)
Added in 2005/2006 74
Total Number of Sessions 3,861,649 (7% increase)

The CAT

Bibliographic Records in Database 3,038,479 (7% increase)
Bibliographic Loaded in 2005/2006 99,119
Total Number of Sessions 1,231,116

Circulation

Items in Database 5,692,100
Users in Database 169,550
Charge Transactions (Charges and Renewals) 663,924

Hardware

LIAS Express Workstations in the Libraries 80
Authenticated Public Workstations in the
Libraries 670
Staff Workstations in the University Libraries 800
Disk Storage 121 TB (124% increase)
Servers 25 Windows, 2 Linux, 1 VMS, 6 SUN

