

University of Hawai'i at Manoa Library
Desktop Network Services
Annual Report, 2003/04
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Desktop Network Services serves the staff of the University of Hawai'i at Manoa Library by maintaining the Library's staff application and print servers, wired and wireless network and all desktop computing and printing resources. The department provides hardware, software, network/datacomm; and digitizing support, consultation and research services and manages the Library's proxy server, web servers and general library pages, and assists departments who maintain their web pages.

MAJOR FUNCTIONS PERFORMED BY THE DEPARTMENT IN 2003/04

- Planned and implemented RAM and Operating System upgrades of staff PCs
- Installed post-release patches of Endeavor Voyager client-side software (August, October, November, March, June)
- Consulted with Library staff and Admin to determine computing hardware and software needs to expend specially appropriated RTRF and Yap/UH Foundation funds
- Installed Shuhai Wenyan transferred from UH Manoa Philosophy department
- Upgraded servers and server-based software used library-wide
- Responded to WWW virus and worm attacks
- Coordinated system-wide purchase of Ariel ILL equipment (PCs, printers, scanners)
- Expanded, improved and managed UH Manoa Library data communications network infrastructure - installed firewall in Hamilton
- Revised UH Manoa Library web pages, continued creation and/or transfer of department pages to library server
- Installed multimedia videoconference equipment in Yap Conference Room
- Provided orientation and instruction to Library staff in use of videoconference facility
- Participated in planning for, and implementation of OpenURL and improved Electronic Resources Gateway
- Supported digitization initiatives and projects.

PERSONNEL

The department operated with a permanent staff of 4 positions and 1 temporary position:

- Martha Chantiny, Department Chair, Librarian IV
- Wayne Agunat, Microcomputer Support IT Specialist
- Tom Ishimitsu, Network Support IT Specialist
- Wing Leung, Server Support IT Specialist
- In addition, a temporary position has been filled as follows:
- Beth Tillinghast, Web Support, Librarian II [temporary appointment through July 31, 2007]

The department also employs student assistants who perform microcomputer and network support tasks, ranging in number from 4 to a peak of 7 individuals working approximately 12-15 hours each during the school year, i.e. approximately 1.5-3 FTE. In addition, 1 student assistant works approximately 15 hours each to perform web and digitizing project support.

Staff presentations this past year included:

- Wing and Tom on wireless
- Wayne on multimedia equipment
- Wing (with Steph) on the new E-resource gateway (2 times)
- Bob and Wing on Openurl
- Martha on Glyphgate and Hawaiian diacritics on web pages
- Beth and Tom on home computer security
- Martha and Beth on digitizing internships (at LIS Internship Fair)
- Beth on ADA

WORKLOAD

Requests for Desktop Network Services assistance are received primarily via electronic mail, and also by telephone and in person. Department staff responded to requests for assistance in Hamilton and Sinclair Library as well as the Jefferson Annex. DNS handled approximately 3,600 emails in FY 2003-04 sent to the **micro@hawaii.edu** address. Requests for assistance were also handled via email to the **libweb@hawaii.edu** address. The number of requests handled this past year is over 1200 more than last year. I attribute the increase to the University's switch to a totally online bid and P.O. request system. This resulted in a major jump in the number of emails exchanged concerning price requests, bid specifications and status.

The email account **uhmlibps@hawaii.edu** monitored by Randy Hensley has been the primary general contact point on most web pages for 2 years now. During the past year approximately 15,306 messages were received for **libweb@hawaii.edu**. Probably 50 percent of these messages were spam; by far the majority was sales messages. A minor number of the messages, approximately .6%, were pertinent to the libweb account:

Website Problems/ requests	Database Problems/ questions	Misc. Questions	ESP Requests	Library-related Questions	Voyager Problems	Book Purchase Suggestions
42	19	11	11	8	7	3

Major categories of services provided include:

- Supporting 11 Windows servers (across 3 domains) and 2 Unix servers
- Troubleshooting problems (or apparent problems) with network, microcomputer equipment, software and printing
- Performing equipment and software installations, configuration, and upgrades, moves and maintenance operations
- Monitoring network and server activity logs, anticipating and responding to warning signs; detecting, deterring and/or resolving errors
- Performing CD ROM product installs, upgrades and troubleshooting
- Supporting 8 Goprint paystations with 9 associated printers and 2 servers (one in Hamilton and one in Sinclair)
- Maintaining hardware and software inventories
- Monitoring maintenance and bid contracts for datacomm and microcomputer equipment
- Handling numerous short and long-term projects

The number of PCs supported by DNS did not increase significantly during FY 03-04. However, large numbers of staff PCs received RAM and Operating System upgrades (to Windows XP) to insure that they are capable of running the 2001.3 (aka Unicode) version of Voyager software. Major changes included:

PCs by Department	03/04 changes
Admin	All PCs upgraded to at least 256MB RAM from 128MB
Acquisitions	12
Archives/Jefferson	Official department created, PCs & printers moved to Phase3, 4 staff PCs upgraded to 256MB RAM
Asia	12 staff PCs (incl Ref) upgraded to at least 256MB RAM from 128MB, CJK public PCs upgraded to 256MB
BHSD	16 staff and 3 Ref PCs upgraded to at least 256MB RAM, P22-2 public PCs upgraded from P166 to P500, P2-3 added P5xx and P6xx; P6xx and P7xx public PCs upgraded to 128MB or more
Cat/CatSS	PCs with 128MB upgraded to 256MB RAM or more, PCs with 256 upgraded to 512; CopyCat staff PCs all replaced with Pentium4 PCs
DNS	10
Computer Room	Shuhai Wenyuan database server transferred from Philosophy department; main DNS and print server replaced with new hardware; new proxy server replaced old equipment
Fiscal/Mailroom	All PCs upgraded to at least 256MB RAM from 128MB
Gov Docs/Maps	Staff, ADA and Ref PCs upgraded to at least 256MB RAM from 128MB; 1 workroom PC replaced with Pentium4
HL Circ	All PCs upgraded to at least 256MB RAM from 128MB
ESP/ILL	New Ariel workstation and scanner installed, old Ariel moved to Sinclair
Sci/Tech	Kurzweil workstation & scanner added to "Fishbowl"; Ref PCs upgraded to 256MB RAM; increased number of public PCs in Phase 3 floors 2,3 and 4

Sinclair	Replaced 12 old public PCs with new XP workstations in AVC, installed 4 new Pentium4 in staff areas, all PCs upgraded to at least 256MB RAM
Special Coll	All PCs upgraded to at least 256MB RAM

Troubleshooting of all types (hardware, software, printing, classroom-related) accounted for almost 50% of the work performed by DNS support staff and students. Software-related services (including installation, configuration, purchase and troubleshooting) accounted for 46% of the requests. Approximately 7% of the software services were related to tracking and resolution of a Run-Time Error situation with the Voyager client. Hardware-related support (troubleshooting, replacement, purchasing, moving, and network-related) constitutes over 14% of the requests; troubleshooting and support for printing, including the Goprint systems account for slightly more than 11% of the email reports. Requests for installation, reconfiguration or updating of CD products, or reports of problems with access to shared electronic resources on servers such as the CD ROM server for a little more than 5% of the email messages to <micro>. Most printing problems were associated with trying to print large PDF files on public PCs, and with network-related problems (not logging on, change in print server IP) on staff PCs.

	PCs by Department 6/01	PCs by Department 7/02 [public PC]	6/03 [public PC]	7/04 [public PC]	Comments
Admin	5	8 + 4 Macs	12 + 3 Macs	16 + 3 Macs	Includes Development Office
Acquisitions	12	14	13	13	
Archives/ Jefferson	2	3	4	12 [1]	New department created
Asia	27	30 [11]	31 + 2 Macs[12]	32 + 2 Macs[12]	includes Goprint paystation
BHSD	59	82 [66]	93 [76]	94 [77]	includes 2 Goprint paystations & 3 Ref desk PCs
Classrooms	13 (rm2, 401)	35 (rm 113, 156)	51 (rm 113, 156, 306)	53 (rm 113, A153, A156, 306)	Includes Yap Conference room
Cat/CatSS	22	22	22	24	
DNS	10	14 + 2 Macs	15 + 2 Macs	18 + 2 Macs	includes PCs for testing, & 2 for server backups
Digitizing	4	4	4	5	
Computer Room	5	9	10	11 + 1 Mac	Servers: network printing, cataloging LAN, Goprint, Calendar & MM, SQL, Sci/tech PRAISE, Ariel, Shuhai Wenyuan
Fiscal/Mailroom	8	9	9	9	
Gov Docs/Maps	14 [7]	18 [10]	18 [11]	17 [9]	2 PCs not installed after renovation per dept. request
HL Circ	24	25 (12)	25 (12)	25 (12)	12 = counter or workroom
ESP/ILL	7	7	7	7	Includes Ariel upgrade
Preservation	9	9	10	10	

Sci/Tech	21	39 +3 Macs [28]	42 + 4 Macs [34]	43 + 6 Macs	includes Goprint paystation, additional equipment mostly grant funded
Serials	21	23	23	25	RTRF funding
Sinclair	56	76 [32]	76 + 9 Macs [48]	80 + 9 Macs [48]	Public includes 2 Goprint paystations, 3 servers, 11 Circ counter
Special Coll	25	30 [14] + 1 Mac	30 [17] + 1 Mac	29 [17] + 1 Mac	includes Goprint paystation
Charlot	5	5	6 + 1 Mac	1 Mac	Does not include Jefferson after 6/03 column
Systems	12	12	12	12	RAM increased to 512MB
TOTAL	362	479	557	560	

Support tasks and services often involve more than one type of problem. A situation reported as related to one matter can turn out to be something entirely different; therefore categories of support services overlap. Based on a sample of 1686 email messages to the <micro> address, the highest numbers of requests were related to some aspect of software installation or troubleshooting. This is due to four factors which affected all staff and most public PCs: 1) ITS implemented secure file transfer and encrypted email, which required changes to telnet/pine, FTP and email programs, 2) Windows XP upgrades triggered software-related issues and reconfiguration, 3) there were several major virus and worm attacks on campus in the past year and 4) license expiration and renewal problems with Library of Congress and the Cataloger's Desktop CD ROM product increased. Categories analyzed include the following: troubleshooting-hardware, software, printing (including Goprint), equipment moves and inventory-related activities, purchase, install, upgrade or reconfiguration requests for both hardware and software, web- and CD ROM-based, in-house and remote database access, classroom support, Voyager server or client-related issues, miscellaneous/general information or questions about library services and facilities, and network/datacomm related responsibilities. The highest numbers of requests by department come from, or are related to, BHSD. This is partly because the department has the largest number of public PCs. Support requests from Asia account for the next highest percentage, partly due to the specialized nature of the operating system and software setups on the public PCs and because Asia has the most number of single-use CD ROMs that frequently require installation or updating. See the [graphs](#) for more details about the support tasks performed by DNS.

EXPENDITURES

Almost all of this years G-fund expenditures were for library-wide purposes, including replacing or upgrading public PCs, installing wireless and laptop docking facilities, or updating and increasing software client licenses for Windows servers and public PC security programs. The total amount of special funds expended was over \$89,000; the amount allocated from library general funds was just under \$56,000. An additional \$11,800 was used to pay maintenance contracts on servers and datacomm equipment.

2003/04		UL+	Yap	Other
Funds	General	Special	Special	Special*
Supplies/Repairs Software	\$7,157 \$7,263	-- \$15,056	all	all
Equipment/Datacomm	\$22,118	\$821	types	types
Micros/Servers/Printers Scanners/BCRs	\$19,443	\$16,388	combined	combined:
Total	\$55,981	\$32,265	\$19,300	\$37,715

2002/03	RTRF		Other	2001/02	LMS		Other
Funds	General	Special	Special*		General	Special	Special*
Supplies/ Repairs Software	\$4,843 \$11,452	-- \$1,049	all		\$19,060 \$11,440	-- \$27,206	all
Equipment/ Datacomm	\$14,408	--	types		\$25,775	--	types
Micros/ Printers Scanners/ BCRs	\$38,485	\$71,142	combined:		\$12,378	\$74,530	combined:
Total	\$69,188**	\$72,191	\$5,247		\$68,653	\$101,736	\$21,817

	2000/01		1999/00	
Funds	General	Special	General	Special
Supplies/ Software	\$13,465	\$34,446	\$24,080	\$18,385
Equip/ Datacomm	\$18,147	\$27,852	\$14,976	\$68,746
Micros	Inc. above	\$253,602	Inc. above	\$255,727
Total	\$31,612	\$315,900	\$39,056	\$342,858

+ University Librarian Enrichment Fund (aka RTRF funds)

* Other Special funds include: system-wide Ariel funding, EWC, SEED/DEI and WCC grants, UH Learning Communities, UH Foundation & Science/Technology grants

** Some funding for Equipment/Datacomm moved from maintenance category to purchase category

LIBRARY WEB SERVER

Statistics

The Hamilton Library web server statistics combine data on use of the Hamilton Library main web pages as well as Hamilton's Digital Archive Collections (Hawaiian Language Newspaper Project, the Hawaii War Records Archive, and the Trust Territories of the Pacific Archives). A few interesting observations can be made from viewing the web server statistics for 2004:

- For the last few years, the number of average successful requests per day has increased. The requests count has almost doubled in the last two years, currently averaging at 20,089 a month. January showed the highest recorded requests at 23,868.

- The amount of average data transferred fluctuated throughout the year, with the average gigabytes of data recorded at 41.20 and the greatest amount at 59.25. This amount again has doubled over the recorded averages for the last two years.
- The highest use day is Tuesday, though Monday through Wednesday all record a great deal of use.
- Highest use time of day is 3:00 PM, though use is heavy from 10:00AM through 3:00 PM, which is consistent with last year's average.
- For most months, the highest number of domain hits came from educational ISPs. This is a change over last year's statistics, which recorded the highest number of domain hits came from the commercial sector.

Page hit counters were "rolled over" on several of the library site's main pages on July 30, 2004; the hit counts were as follows:

- Main web page (<http://libweb.hawaii.edu/uhmlib/index.htm>) = 1,159,360 (up from 942,920 last year)
- Digital Archive Collections main page (<http://libweb.hawaii.edu/>) = 18, 546 (up from 17,878 last year - reflecting addition of the annexation web site)
- Staff Only main page (http://libweb.hawaii.edu/uhmlib/staffonly/library_staff_materials.html) = 5,650 (up from 4,821 last year)
- Main pages for the three digital collections developed or expanded with IMLS grant funding remained much the same as last year:
- Hawaiian Language Newspapers (<http://libweb.hawaii.edu/hnp/newspapers.htm>) = 5,828
- Hawaii War Record Photographs (http://libweb.hawaii.edu/hwr/HWRD_html/HWRD_welcome.htm) = 3,343
- Trust Territory of the Pacific Archives (<http://libweb.hawaii.edu/ttp/tpi.html>) = 8,316
- Annexation of Hawaii: a collection of documents (<http://libweb.hawaii.edu/digicoll/annexation.html>) = 10,746
- The Databases & Indexes page (<http://libweb.hawaii.edu/uhmlib/databases/dbinfo.html>) was retired in July 2003 (169,200 hits last year) - the new E-resource Gateway page replaced that page and the Serials Journal title list pages. This past year's hits = 238,195, reflecting the increased visibility and the centralized access point for all forms of electronic resources

PROJECTS AND HIGHLIGHTS

Data Communication/Network Support

- Installed firewall and implemented port blocking of selected ports
- Activated and configured anti-virus and intrusion detection components of firewall
- Worked with ITS to provide port filtering off their router in Sinclair to protect library PCs from some types of malicious attacks
- Configured CyberGauge (network traffic monitoring software) to automatically save daily copy of network usage charts
- Initiated contact with ITS and agreed on plan to provide links to two routers, if one fails, the other will be able to take over and maintain connectivity between Hamilton and Keller Hall
- Worked with ITS to implement a redundant connection (alternate route) between Hamilton and Sinclair, ITS still working on putting equipment in place as of July 2004
- Moved majority of 56 subnet to 107 subnet to improve the efficiency of the management vlan
- Configured all switch ports for auto-negotiation which resulted in most devices connecting at 100Mbps/full duplex
- Integrated Group Study Rooms into wireless authentication network
- Upgraded RAM and IOS in Phase II/III Route Switch Modules
- Coordinated activation of Campus TV service in Hamilton Library
- Worked with Systems to resolve runtime error/timeout problem with Voyager and Circ notice emails in association with the firewall
- Implemented monitoring of campus network connection and pager alert in the event of a loss of connection
- Regularly reviewed Cisco, CERT and Microsoft advisories on possible denial of service attacks that might affect switches and routers.
- Provided monitoring of peer-to-peer software use and network assistance to Library & Information Studies program

Microcomputer/Server Support

- Supported Tech Services server for shared use of Catalogers Desktop, Voyager and other tech services workfiles
- Setup LandView, PUMS and Census CDs to be hosted from a server for GovDocs’ Census workshop
- Disabled Telnet and implemented SSH on library PCs to conform with security changes resulting from ITS move to a new mail server/webmail
- Automated the process to update (add and delete) authorized scholar workstation users
- Provided support for HVUG meeting and Voyager training
- Set up and supported several videoconference events in Yap Multimedia room
- Redistributed PCs to various staff and departments
- Installed Windows2000 server for file and printer sharing in Sinclair
- Implemented ILLiad for use by ESP/ILL and tie in with OpenURL
- Implemented OpenSSH on library web and proxy servers
- Purchased and installed Kurzweil software and scanner for ADA use in Sci/tech "fishbowl"
- Integrated use of campus LDAP into library server authentication

Web Support

- Participated in OpenURL implementation
- Created "wikis" for Annexation website, expanded Claudel/Charlot web site, completed XXth Century Russian journal TOC web site
- Helped to conduct two Town Hall Meetings for the Web Redesign group
- Created and compiled Web Use survey
- Expanded ADA information on web as part of ADA Working Group
- Worked with Outreach/Instruction librarian to expand the "learning the library" and Digital Reference Shelf web pages
- Assisted with questionnaire development for serials review faculty/student survey; revised instruction statistics survey
- Created information pages for Serials Review, OpenURL and Web Redesign projects

Department head

- Coordinated maintenance and expansion of pages with Web Support Librarian
- Served as member of Department Heads Group
- Served on the "Future of the Archives" committee
- Wrote and received grant funding for Glyphgate software (DEI) and Kurzweil software (WCC)
- Served as technical director for HCH-funded digitizing project (Anti-Annexation Documents)
- Served as technical support and consultant for potential and ongoing digitizing projects (HRAF files with Consulting Anthropologist to the FSM Historic Preservation Office, Yap; scanner equipment for the School of Architecture; database design for students in ICS 691 working on the Palau Marine Fisheries Project data; preliminary "Wish List for AV Digitization")
- Responded to surveys, including: RLG Survey - Technical Metadata and the IMLS Digital Collections and Content grant project
- Participated in the ongoing support of the new Electronic Resources gateway
- Attended ASIST 2003 Conference

PROGRESS ON 2003/04 GOALS

Data Communication/Network Support

- Implement network firewall and network redundancy
Completed
- Reconfigure network to provide for trusted, untrusted, and DMZ zones

VLAN, 106 and 107 IP ranges, further work on hold pending additional research

- Explore enhanced network services such as IP video, audio/video streaming, and media on demand.
Yap Multimedia Conference Room equipment installation completed; Smartboards on order
- Maintain network accessibility and security through end-of-life component replacements and IOS upgrades
Ongoing
- Investigate/implement automatic capture of network usage information
Completed
- Investigate options for improving and/or upgrading of SL wiring infrastructure
10BaseT hubs were replaced with 10/100 switches in public and staff areas to provide faster throughput and better data security.

Microcomputer/Server Support

- Improve the searching behavior of electronic resources gateway
Completed
- Index (full-text) DNS procedures currently stored as word documents into a web searchable format, possibly using the Microsoft indexing service and visual studio.net
Student created "BBS" system in pilot use
- Test backup/disaster recover on servers
Tested on Library web, ILLiad, proxy, and Print servers; implemented a new DLT backup system that doubles backup capacity
- Investigate/implement automatic software inventory system
SMS purchased, implementation in FY04-05
- Investigate/implement online, centralized request/resolution tracking system
Desired system (Web Help Desk) not affordable in current budget environment
- Investigate/implement new methods to increase public workstation security without degrading user experience
Scripted shut-down and lock-outs in place on BHSD black Dell WinXP workstations
- Stay current with all server software patches
Accomplished

Web Support

- Extend employment period of the temporary Web Support Librarian, seek conversion of position to permanent status
UHPA Contract established 3-year temporary contract requirement - still seeking permanent position
- Continue transitioning of departmental pages from UHUNIX to Library web server
Pacific department, Library Faculty Senate pages, additional Charlot pages, initiated transition of Archives main page
- Work with Server support IT Specialist to implement more database-driven web services for staff
Will be incorporated in upcoming web redesign and implementation of Coldfusion
- Investigate and implement additional usage analysis tools
Web use survey performed with existing software
- Research and apply additional World Wide Web Consortium WAI guidelines to main library pages
Will be incorporated in upcoming web redesign
- Continue research on XHTML, explore taking coursework
Attended an Outreach class "Building a Database—Driven Site" and a CSS workshop

GOALS FOR 2004/2005:

Network/Datacomm

- Replace one of 2 "end of life" Cisco 5500 routers with two Cisco 3550 layer 3 switches - by December 2004
- Replace fiber switch for wireless connection with a media converter rack that holds 12 to 18 media converters, then use

a regular Cisco switch to uplink to the wireless switch - by December 2004

- Continue replacement of 2924 and 2924C switches. Replace up to 17 of the 35 which will be at "end of life" in 2006 (approx cost = \$17K) - by June 2005

Microcomputers/Printers/etc.

- Upgrade 34 staff PCs to WinXP - either via license purchase or CPU replacement - by December 2004
- Upgrade at least 20 public PCs in BHSD 1st floor cluster to WinXP (upgrade CPUs in rm306, recycle to BHSD, upgrade OS) - by June 2005
- Implement Unicode client update using SMS server - expected date January 2005
- Improve and expand use of campus LDAP authentication by applying it to other web-based request forms as applicable
- Coordinate and resolve authentication and other electronic resource/proxy issues with new JABSOM library facility
- Convert Catalogers Desktop product from LAN-based to web (depends on Library of Congress) - as soon as possible
- Consult with Kokua Office and upgrade or expand ADA equipment and software available in library - by June 2005
- Upgrade public and classroom printers and up to 15 staff printers - by June 2005
- Replace CD server hardware to increase response and reboot speed

Web

- Establish and provide a low maintenance "library solution" for implementation of staff inTRANet - by December 2004
- Continue transitioning of departmental pages from UHUNIX to Library web server. Relocate at least 2 departmental web sites by June 2005
- With support from the Worldwide Organization of Webmasters, organize and offer a 2-day conference or workshop at the University - by May 2005
- Explore possibilities for implementing a "MyUH" type library web portal ("MyLibrary")

Digitization

- Apply for a local or federal (by February 2005) grant funding for digitization or pilot development of one of the recommended collection:
 - Electronic Theses & Dissertations - Hawai'i/Pacific/Asia
 - Miyamoto (AKA University Relations Photograph collection)
 - Posters of the Pacific regions
 - Japanese-Language Schools in Hawai'i Textbooks
 - Frank Hawley Collection Scrolls: On the Kingdom of the Ryukyus
 - Russians in China material
- Participate in implementation and use of the OCLC Digital Archive product - by June 2005
- Investigate and establish pilot "Dspace-like" system (perhaps with UH Faculty papers) by June 2005