July 9, 1993

Ms. Louise Addis
SLAC Library
Stanford, CA 94309

Dear Ms. Addis:

It was a pleasure to make your acquaintance at the recent SLA meeting in Cincinnati. The P-A-M sessions that I was able to attend during my half day (12 noon to 12 midnight) visit were excellent and I found your late evening demonstration of the SLAC preprint service program particularly interesting. We want to thank you, especially, for having taken the time to meet and exchange information and views with Professor Barschall and me over dinner. We learned a lot!

As I promised (or perhaps threatened) I am sending you a draft of the request for proposals we intend to distribute to potential vendors in an effort to begin putting Physical Review Letters on line in 1994. We would like your comments and suggestions for improvements on all aspects – technical, economic, even "socio-political" (i.e. relating to the role of the libraries in the distribution scheme that is envisaged). We are sending the material to only a small number of librarians and other friends whose opinions and advice we have reason to value. However, please feel free to show it to colleagues who may have something to contribute.

Please remember that what we are sending you is a draft and that the final RFP may be different, as a result of the comments that we will receive from you and others. Two aspects are, however, unlikely to change: 1) our desire to make the electronic version available to paper subscribers at minimal additional cost and 2) our commitment to permanently maintain the archival integrity and accessibility of the electronic product.

Please send your criticisms, comments and proposals for change either to Ben Bederson, our Editor-in-Chief (tel. no. (212)998-7695, fax no. (212)677-5943, e-mail: BEDERSON@ACF2.NYU.EDU), or to me (tel. no. (212)682-7341, fax no. (212) 687-2532, e-mail: APSAP@CUNYVM.CUNY.EDU). Thank you so much for your help.

Sincerely yours,

Harry Lustig

Encl.
HL/mjc
Request for Proposal,
Physical Review Letters of The American Physical Society

Introduction

The American Physical Society (APS) publishes seven journals, considered to be among the world's leading physics research journals. These journals are:

- Physical Review A through E, the archival journals that publish important new results in the various subfields of physics.
- Reviews of Modern Physics, which publishes selected review articles in important subfields of physics.
- Physical Review Letters (PRL), which publishes important and timely short articles judged to merit speedy production.

PRL covers essentially all subfields of physics and other closely related disciplines. It possesses what is probably the largest audience of physicists and physical scientists in the international physics literature. PRL is produced weekly. In 1992 the APS journals generated approximately 70,000 pages, of which about 10,000 pages can be attributed to PRL. A recent copy of PRL is attached, for your information.

Statement Of Work

Our ultimate goal is to make available all of our journals in electronic form to libraries and individual users. However, this RFP is directed specifically at PRL.

In essence, we are seeking a vendor who will work with us to deliver PRL online, with a full range of enhancements, and with charging algorithms that would, after several years, make the electronic product self-supporting. We require, in the first instance, that only current issues be made available, starting with the first issue of Vol. 74 (July 1, 1994). We will consider auxiliary proposals; in which sequentially produced volumes, starting with Vol. 73 and working backwards, will also be made available electronically.

The target group for this product is the international community of physicists and other physical scientists who read PRL either through institutional, that is, library, subscriptions, or as individual subscribers, referred to hereafter as "users". 
General Requirements

The electronic product is to be produced concomitantly with the printed version, which must continue to be published unchanged (except perhaps with some minor style changes).

The electronic version must be portable and accessible to users through the most commonly used operating systems, including xwindows/UNIX, DOS-windows/PC, and Apple-Macintosh, through Internet as well as other non-commercial and commercial delivery systems.

Monitoring of usage is the responsibility of the vendor. Details are discussed below.

Secondary products such as CD-ROM versions should be made available at modest incremental cost.

Bids should be offered on two bases: (1) starting with a current issue forward, and (2) retroproduction from the current issue backward, for a minimum of five years. Item 2 could be phased in over a period of approximately one year.

Specifications

- A. Full text, equations, and figures should be comfortably readable on the screen.

- B. A good printed copy should be obtainable without excessive delay at the user's workplace.

- C. For institutional subscribers (libraries): Subscription costs, or licensing fees, should be scaled, that is, based upon the number of simultaneous users for which the specific subscription is designed. In presenting the bid, the maximum number of simultaneous users at a given institution should be specified. The maximum number of simultaneous total users at all institutions any given time, for an on-line version of a particular PRL issue, is estimated to be 100. The maximum number of total users at any given time for all on-line users is estimated to be 300.

- D. Time delays: For a single user at a given site, the first page of an accessed article/journal should require no more than 3 to 5 seconds; subsequent pages no more than 1 to 3 seconds. Each additional user at a given site can result in an additional first page delay of 0.1 to 0.2 seconds. These figures apply when the total number of users at a given time is less than 300. Beyond this figure, an additional first page delay of 0.1 seconds per user is acceptable.

- E. Any sequence of pages from a given article should be accessible.

- F. Color: APS will consider as an optional add-on a proposal to include full color figures on screen, and printable with a color laser printer.

- G. Equations: Equations should be reproduced exactly as composed.
H. Figures: Figures should be embedded in the article exactly as presented in composed article. Resolution of figures on the screen should be equal to or better than 300 dpi; in print equal to or better than 600 dpi.

I. Durability and archival integrity: As already noted, the electronic and printed versions of PRL are to be the same.

The intent is to maintain the electronic version indefinitely. Subsequent changes in the electronic version which result in any textual and substantive contextual change, for example to correct typographical errors, is not permitted. Any subsequent changes must appear as Errata (see below).

Searches

A. User is supplied with running index by title and authors.

B. User must be able to find the article(s) either directly from the index, or by:
   i. Volume number, page number or equivalent
   ii. Title
   iii. Author or co-author plus date; supplied article is the one that comes closest to the stated date.

C. More general searches. Here the titles and authors appropriate articles are presented; user can then select desired articles’ one at a time. General searches include:
   i. Keyword(s) in Boolean search
   ii. Pacs numbers
   iii. Any given set of words in the structure, text or figures in the article. This search capability should be Boolean and linguistic and be capable of being limited to title, abstract, etc.

D. Related articles: PRL articles that are already in the electronic database that are referenced in the text should be accessible from the reference list. Comments and Replies to Comments (related critical articles subsequently published by other authors in future PRLs, and author replies to these Comments) should be noted. A similar condition applies to subsequent Errata.
General Remarks

We consider this project as a pilot proposal, expected to have a duration of three years from the starting date. Experience gained in this project will be used to modify subsequent RFPs. Should experience warrant, we will in subsequent RFPs extend the project to other APS journals.

APS will supply to the vendor the necessary key strokes, using a version of Tex. The version to be used will be Revtex, a variation of Latex developed by APS to conform best to the style requirements of our journals. Additional SGML tags will also be supplied by APS, as mutually agreed upon. Figures will be supplied either as Postscript files (when supplied by the authors) or as bit-scanned images, produced by APS from figures provided by authors.

APS and the vendor are expected to work together with the producer of the paper version, in order to minimize duplication of effort. The intent is to make the electronic version available, from the same source as the paper version, at minimal incremental cost. APS will consider joint proposals by the vendor along with the producer of the paper version (even including the printing and distribution of the paper product).

The search and other enhancement capabilities can, of course, be proprietary, belonging to the vendor, although we prefer an open architecture as possible, subject to the ability to monitor and control usage. All keystrokes, etc., supplied to the vendor, remain the property of APS and are to be returned to APS upon completion of the project, if so requested. The copyrights for all electronic products are reserved for the American Physical Society.

Schedules

Bids should be submitted no later than ________, 1993. The contract will have a three year duration. The on-line product is to be available no later than six months from the start of the project, which will be on Jan. 1, 1994. A working prototype is to be available no later then three months from the start of the project. The prototype should be portable to Dynix/PTX V2 running on a SEQUENT S2000/250, X/Windows & Motif, DOS-Window/PC and Apple Macintosh.

There will be six month reviews, which will be based upon the following performance criteria:

- i. Assurance that the product is initially made available, on time.
- ii. Assurance that the required technical standards are being met.
- iii. Assurance that the network availability is adequate.
- iv. Appraisal of ongoing APS-vendor interactions to assure adequate consultation.
IT SERVICES on the web

21.2.19

Get a discount, or sign up for a free trial, from IT option.

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We need to find one of these scripts on the site collaboration software.

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Try passwords on the web

If you lose a password or if you want to change one, visit your site's password recovery page.

Try support on the web

If you want to change a password in the library or maybe change or update your account, visit your site's password recovery page.

Try the web

If you need to look up a phone number, room number, or email address for a fellow colleague, visit your site's password recovery page.

Try the web

If you want to log on to Stack, visit your site's password recovery page.

To get contact in the bookstore, visit your site's password recovery page.

Please try to log in to Stack, visit your site's password recovery page.

Try the web
SLAC MEMORANDUM

31 March 1994

To: WWWizards
From: L. Addis
Subject: Machine aliases for W3 use

The following aliases have been established for use on W3 pages referring to SLAC W3 servers. The use of these aliases instead of the real names of computers (i.e. SLACVM, SLACVX, LIBNEXT, etc.) where W3 servers reside will aid in future migrations as the SLAC home page moves from SLACVM to UNIX, and from one Unix platform to another and as other files and services (such as SPIRES and full text documents) move from one machine to another.

The convention is lowercase...with a prefix of 'www-' in keeping with the general web conventions.

ALIASES:

1. www-slac (SLACVM) - Use www-slac to refer to all non-SPIRES-related files which, for the present, must be maintained from VM. Examples would be files on the U-disk.

2. www-spires (SLACVM) - Use www-spires to refer to all SPIRES-related files with the possible exceptions of single calls to BINLIST, SLACSPEAK, and INSTITUTIONS.

A partial list of SPIRES databases which should be handled thru www-spires

a. HEP
b. BOOKS
c. STORES
d. CONF
e. PROBTRAK

FREEHEP should be handled thru alias HEPLIBW3 which is an old alias for SLACVM which is already in place.

3. www-sld (SLACVX)

4. www-sldora (SLACVM) - use for Oracle

5. www-midas (SLACVX) - use for Midas-related files
TCP M 1 V 91 180 2 10/14/91 15:47:28 TYH193

-----> Batch return code = 0.

-----> System cleanup $BCLEAN.

******************************************************************************************************

* 
* End execution of TYH239 for TERRYH at 18:42:59 on 14/11/91.
* 
* Actual CPU time (mm:ss[.th]):  Virtual = 0:00.37 , Total = 0:00.64
* I/O counts: SID=000531 RDR-000000 PRT-000100 PCH-000071
* 
* Space used on A-disk at job end: 48K
* 
* I/O counts on units still available
* Spool units
* 0009: 87 000C: 0 000D: 2 000E: 0
* 00AE: 0
* Dmae units
* 059E(T): 15 059F(U): 5 05A0(V): 32

******************************************************************************************************
To: WWWizards
Fr: Addis
Subject: The Migration of '94, a working outline

Date: 16 Mar 94

Reasons for moving our primary W3 server (www.slac.stanford.edu) to Unix?

1. Can use http/1 modern server .... since no development is being done on VM as SLAC prepares for general migration to Unix, we are stuck with old code in the VM server which doesn't provide needed features (i.e., security, redirection, etc.)

2. Response time is significantly better on Unix?

3. Since SLAC is moving to Unix over then next couple of years, we should make it easy on ourselves and move now to minimize the pain.

4. .... ????

What are the problems in moving the SLAC main server and home page to Unix? Would we have to continue supporting a W3 server on SLACVM once the main W3 pages and associated files were moved to Unix?

1. The main problem is SPIRES. Heaviest usage of W3 at SLAC at this time is SPIRES - HEP database usage (over 40,000 calls in Feb 94).

SPIRES runs on SLACVM and, though there is a test version of SPIRES running on Unix, it is not feasible at this time to switch.

There are three databases to which URL's point from many many W3 'pages', HEP, BINLIST, and SLACSpeak (glossary database).

All 'relative' URL's which point to these and other SPIRES databases must be expanded in all occurrences in html files which are moved to the Unix side.

2. There are also URL's which point to datasets which are maintained for other than W3 purposes on a number of SLACVM disks. URL's for these files must also be expanded.

3. While the SLAC home page can be edited to provide fully qualified links where appropriate, there are other html files over which Winters has no control which will need to be changed.

Some possible solutions

1. Use the 'redirection' features of the new servers and browsers to fully expand the URL's on the fly????

2. As an interim measure, use NSF mounting (Bebo has a test going) of the W3 disks from SLACVM to Unix...to avoid actually moving the files for the present. Fix as many URL's as possible, use redirection where appropriate.

3. To handle the ubiquitous BINLIST and SLACSPK SPEARE references, use the test Unix SPIRES (USPIRES) to serve these two small databases. (JXH, Bebo, Crane & Clancey have a test going now). This would allow
'relative' URLs to continue in use for these databases, cutting down greatly on the number of expanded URLs which have to be provided.

3. Start using special WWW aliases for SPIRES URL's for both SLACVM and LIBNEXT so that when the service moves to another platform, it will be transparent.

Proposed:  
WWW-SPIRES or WWWSPIRES for SLACVM (Spires only)  
WWW-PUB or WWWPUB for LIBNEXT (.ps.Z document server)
From bebo@SLAC.Stanford.EDU Sun Mar 2 00:55:40 1997
Date: Sat, 01 Mar 1997 23:10:40 -0800
From: Bebo White <bebo@SLAC.Stanford.EDU>
To: addis@SLAC.Stanford.EDU
Subject: WWW6 History Track

Louise,

It's my understanding from Joan that you will not be demonstrating Midas and participating in the History Track at WWW6. I would like to ask you to reconsider since I strongly believe that your insight in those early days was really what got WWW going at SLAC. I also believe that your experience with SPIRES and the preprints database on the Web would provide valuable and interesting content to the conference attendees.

Thanks,
Bebo

Bebo - many thanks for your personal message - I know how very busy you must be with all the conference details.

I'll think over your suggestion, however.

I wanted Kevin H. a couple of months ago that the most I could contribute would be a demo of Midas if Tony is in Germany. When I heard from Joan that she would do the demo, I was quite relieved not to have even that constraint. I am extremely busy with the work of the library databases to him. We have made our first deadline g
Conference Event
The First U.S. Web Site: SLAC, SPIRES, and MidasWWW

Date: 4/11/97
Time: 2:00 pm
Type: Presentation
Track: History
Status: Final
URL: http://www.webhistory.org/historyday/abstracts.html#joan
Location: W/TH Westin Theater
Coordinator: Joan Winters [winters@slac.stanford.edu]

Description:
In 1991 the Stanford Linear Accelerator Center (SLAC) put up the first U.S. Web site. SLAC adopted the Web to give better access to its SPIRES database, the central forum for preprint scientific papers in the High Energy Physics community. The WWWizard quickly formed as a forum for discussing all aspects of the Web. In 1992, SLAC's Tony Johnson released Midas, a pioneering pre-Mosaic GUI Web browser. Joan Winters, an original WWWizard, will demo SPIRES, the SLAC website, and Midas.

Interested Parties

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<td>Jean</td>
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</tr>
<tr>
<td>Jean</td>
<td>Slisz</td>
<td>Technical Editor</td>
</tr>
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**RECOVER TERRYH 193 TO TDISK**

**DASD 0555 DEFINED**
**TAPE 0F13 ATTACHED TO BATC07A 0181**
**TAPE 0181 ON DEV 0F13 R/W**

MOUNT REQD 18:40:53 Mounting volume RL0357 on device 181, SL NoRing
MOUNT VER 18:41:18 Volume RL0357 on device 181 has been verified

Rewind complete

RESTORING TTYH193

DATA DUMPED 10/31/91 AT 04:35:56 GMT FROM TTYH193 RESTORED TO SCRATCH

INPUT CYLINDER EXTENTS OUTPUT CYLINDER EXTENTS

0000 0000 0000 0000

END OF RESTORE

END OF JOB

18:42:59 * MSG FROM VMSETUP: VMSCAN001I VMSETUP REQUEST FOR TERRYH TTYH239 WILL BE CANCELLED

TAPE 0181 DETACHED BY VMSETUP, TAPE VOLUME(S) UNLOADED

FILE(S) NOT FOUND.

FILENAME FILETYPE FM FORMAT LRECL RECS BLOCKS DATE TIME LABEL

A C 51 F 80 5 1 10/16/91 18:13:27 TTYH193
A EPRS Z1 V 49 1 1 10/16/91 18:15:35 TTYH193
A TEXT Z1 F 80 5 1 10/16/91 18:15:35 TTYH193
BSSDYPES H Z1 V 70 120 1 10/15/91 18:01:30 TTYH193
CC_ALL EXEC Z1 V 81 13 1 10/14/91 15:29:29 TTYH193
CC2 EXEC Z1 V 58 8 1 10/30/91 14:18:05 TTYH193
CMOD EXEC Z1 V 62 201 2 10/30/91 15:36:28 TTYH193
CMS EXEC Z1 F 80 13 1 10/19/91 10:50:56 TTYH193
CMS PRESERVE Z1 V 65 30 1 10/30/91 16:15:36 TTYH193
CPJOB RMAP Z1 F 80 3 1 10/16/91 18:46:59 TTYH193
DLOAD EXEC Z1 V 62 6 1 10/30/91 15:35:54 TTYH193
EDCV C Z1 F 80 5 1 10/16/91 18:08:43 TTYH193
FGT EXEC Z1 V 78 129 2 9/26/91 11:30:24 TTYH193
FINDGATE C Z1 V 78 245 2 9/26/91 9:58:03 TTYH193
FINDGATE C2 Z1 V 78 245 2 9/26/91 15:28:41 TTYH193
FINDGATE TEXT Z1 F 80 113 3 10/30/91 14:18:46 TTYH193
FSEARCH EXEC Z1 V 76 120 2 9/26/91 10:43:32 TTYH193
HTDAEMON C Z1 V 85 639 5 10/15/91 18:10:19 TTYH193
HTDAEMON C2 Z1 V 85 639 5 10/15/91 15:45:38 TTYH193
HTDAEMON MODULE Z1 V 65535 5 32 10/30/91 16:15:39 TTYH193
HTDAEMON TEXT Z1 F 80 183 4 10/30/91 14:16:19 TTYH193
HTTCPC C Z1 V 79 282 2 10/16/91 17:04:54 TTYH193
HTTPC H Z1 V 78 94 1 10/14/91 15:47:38 TTYH193
HTTPC TEXT Z1 F 80 77 2 10/30/91 14:18:32 TTYH193
HTUTILS H Z1 V 79 85 1 10/14/91 15:47:21 TTYH193
LOAD MAP Z1 F 100 392 10 10/30/91 15:34:23 TTYH193
MAKR EXEC Z1 V 51 6 1 9/19/91 14:05:07 TTYH193
MYCC EXEC Z1 V 63 51 1 10/16/91 18:28:29 TTYH193
MYCC EXEC Z1 V 63 51 1 10/24/91 11:01:53 TTYH193
NCCFWN EXEC Z1 V 78 125 2 9/26/91 10:44:28 TTYH193
PROFILE EXEC Z1 V 72 29 2 10/15/91 17:22:58 TTYH193
Q Q Z1 F 80 52 1 9/19/91 14:19:57 TTYH193
RGM EXEC Z1 V 74 21 1 10/15/91 17:47:15 TTYH193
SETUP EXEC Z1 V 62 4 2 10/16/91 17:07:43 TTYH193
STRING H Z2 F 80 75
Louise's Disk: Desktop Folder: WWW History: terryh 911031

Wednesday, November 20, 1996

---

* Start execution of TYH239 for TERRYH, class S.  
* Execution begins at 18:40:52 on 14 Nov 1991 in BATCH07A at SLACVM.  
* Submitted at 18:40:43 on 14 Nov 1991 for TERRYH at SLACVM.  
* Running CURCMS, mode 370, storage = 4096K, time limit = 2 minutes.  
* Max print = 10K lines, max punch = 100K cards.  

---

** RECOVER TERRYH 193 to TDISK **

DASE 0555 DEFINED

TAPE OP13 ATTACHED TO BATCH07A 0181

TAPE 0181 ON DEV OP13 R/W

HNTKEQ100I 18:40:53 Mounting volume RL0357 on device 181, SL NoRing

HNTVER101I 18:41:18 Volume RL0357 on device 181 has been verified

Rewind complete

RESTORING TYH193

DATA DUMPED 10/31/91 AT 04:35.56 GMT FROM TYH193 RESTORED TO SCRATCH

INPUT CYLINDER EXTENTS

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OUTPUT CYLINDER EXTENTS

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END OF RESTORE

END OF JOB

18:42:59  * MSG FROM VMSSETUP: VMSG001I VMSETUP REQUEST FOR TERRYH TYH239 WILL BE CANCELLED

TAPE 0181 DETACHED BY VMSSETUP, TAPE VOLUME(S) UNLOADED

DMSCAROOZE FILE(S) NOT FOUND.

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Restoration of Terry Hung's 1993 disk (TerryH) from Nov 1992
Shows - run exec from 9/19/91
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<td>TYH239</td>
<td>Z1 F</td>
<td>132</td>
<td>87</td>
<td>3</td>
<td>11/14/91 18:43:33</td>
<td>WWW</td>
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</tr>
</tbody>
</table>

-----> Batch return code = 0.

-----> System cleanup $BCLEAN.

****************************

* End execution of LXA109 for ADDIS at 16:47:31 on 19/11/96. *
/* REXX please - Run Daemon */
address command
Say 'Access the disks for TCP/IP'
'EXEC GIME MAINT 5E5 MODE -P'
'EXEC GIME TCPMNT 280 * READIT MODE -P /* TCP/IP source */
'EXEC GIME TCPMNT 410 * DACUR MODE -P /* TCP/IP base */
'EXEC GIME TCPMNT 412 * DACUR MODE -P /* TCP/IP text */
'EXEC GIME TCPMNT 441 * DACUR MODE -P /* TCP/IP last updates fixes */

Say 'Indicate to CMS which libraries to search'
'GLOBAL TXTLIB ECESCE IBMIBM CMSIBM'

Say 'Access the disk with all the indices of XFILE'
'EXEC DROP Z'
'EXEC GIME TESTSDEV 201 Z'

Say 'Start the DAEMON'
'HTDAEMON v -a *:8000 -l findlog'

Terry #3
This is dated 9/19/91
Start experiments w/ new server
by Terry Hung
From terryh Wed Nov 20 11:23:34 1996
Subject: old WWW mail - 2/3 (Iwd)
To: addis
Date: Wed, 20 Nov 1996 11:23:34 -0800 (PST)
Reply-To: terryh@slac.stanford.edu
X-Mailer: ELM [version 2.4 PL25]
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit
Content-Length: 9346
Status: O

Forwarded message:
> From terryh Mon Sep  9 16:49:01 1996
Subject: old WWW mail - 2/3
To: cottrell
Date: Mon, 9 Sep 1996 16:49:01 -0700 (PDT)
Reply-To: terryh@unixhub.slac.stanford.edu
X-Mailer: ELM [version 2.4 PL25]
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit
Content-Length: 8962

Les,

The following is part two of three, it is the mail from Tim. You have a copy of
this part, I added index to it.

Index:
1. 9/26/91 Re: WWW server at SLAC
2. 10/15/91 WWW server at SLAC: Waterloo C
3. 10/16/91 Re: WWW server at SLAC: Waterloo C
4. 11/01/91 Re: HTDaemon on slacvm (exact date unknown, but prior to 11/1/91)

Return-Path: <timbl@nxoc01.CERN.CH>
Date: Thu, 26 Sep 91 12:52:28 GMT+0100
From: timbl@nxoc01.CERN.CH (Tim Berners-Lee)
Subject: Re: WWW server at SLAC
To: terryh@UNIXHUB.slac.stanford.edu (Terry Hung)
X-Envelope-To: terryh@UNIXHUB.SLAC.STANFORD.EDU

Terry,

-The VM code uses the same HTDaemon.c main program as the normal daemon.
I'll mail you a the latest copy of that.
-There is then a module called FINDGate.c which interfaces to the REXX execs.

```
HTDAEMON C
  +-----------------+
  | FINDGATE C     |
  +-----------------+
  | HTTCP C         |
  +-----------------+
```
The REXX execs are very specific to the CERN FIND system of Bernd Pollermann. He wrote them. You are welcome to them if you like. If you have a CERNVM account then

GIME SERVUS03 191

-I've mailed you FINDGate.c (the latest copy) separately.

-When compiling things under VM, I use an exec (CC2 EXEC also on SERVUS03 191) which defines symbols such as SHORT_NAMES, VM and DEBUG.
-Short names is because externals can only be 8 characters,
-VM is to select the include files etc for CERNVM in tcp.h and anywhere else that machine-specific code is needed,
-and DEBUG includes code to print a trace, which in practice we always do.
-[The trace is turned on only with a -v option at run time.]

-Other useful execs which you may want to look at or copy are SETUP EXEC on TIM 191 which gets the TCP disks
-you will probably want a totally different set on your systems
-I have no idea how similar SLACVM and CERNVM are and know very little about either
-and also DLOAD EXEC on SERVUS03 which created the module. <-

-The module HTTPC.c is in the regular distribution as well as on SERVUS03 191.

The line mode browser will compile for VM so long as you define the symbols to select the correct behaviour.
-I think I loaded it with WLOAD EXEC on TIM 191.
-As I never found a way to clear the screen from C, it is not so slick to use as one has to alternately press RETURN for more and the function key for "MORE..." on VM.

-If you can't log onto CERNVM and pick the stuff off, let me know and we'll find some other way. I hope this helps. Keep up the good work, let me know of any snags.

Tim

Return-Path: <timbl@nxoc01.CERN.CH>
Date: Tue, 15 Oct 91 11:10:27 GMT+0100
From: timbl@nxoc01.CERN.CH (Tim Berners-Lee)
Subject: WWW server at SLAC: Waterloo C
To: terryh@UNIXHUB.slac.stanford.edu
X-Envelope-To: terryh@UNIXHUB.SLAC.STANFORD.EDU

Terry,

-It is only since CC and the latest IBM TCP/IP have been available that porting anything to the IBM has been feasible without a lot of hassle.
-The networking people here are all switching.
-IBM have solved, for example by providing "manifest.h", the problems of making unix-like programs compile and load.
-They have to define macros for example to convert long names (gethostname, gethostbyaddr) into...
-If it is possible for you to either compile in the CERNVM environment and then take the module, or to pick up the CERN-like environment at SLAC, then I think it would save you a lot of trouble.

-I'm afraid I don't know how much of the improvements came with CC and how many with TCP/IP.

-Looking at your error messages, it seems that you have include files which are not suitable for your compiler -- like they are CC-oriented include files, and CW doesn't accept #pragma. This would be something to complain to your system people about.

-Once CW has missed an include file, then any error messages afterwards probably simply stem from missing definitions which should have been found in that include file.

-Don't worry about "SHORT_NAMES changed" error: tcp.h redefines SHORT_NAMES in the case of VM as "\" when you have probably predefined it as "1". The difference doesn't matter, so long as it is defined.

-Does the TCP/IP software you have on VM match that on CERNVM? You could check by running our daemon with -v option (Its HTDAEMON MODULE on SERVUS02 191) and seeing whether it communicates with the TCP machine at all.

-It will need a disk linked with a valid "TCPIP DATA" file or somesuch, in order to read which machine it should talk to for TCP/IP.

-If the TCP/IP implementations come from the same place, then you can always compile things here and ship them across. (not much fun!). If they aren't, perhaps you should find a networking guru who has used your TCP/IP and ask him what he thinks of it.

-(By the way, our TCP/IP seems to be on disk CPMNT 582 nowadays)

-If you find some include files, and have only a few problems left with the rest, then mail me with those. I can also talk to our experts here like George Smyris.

Tim

Return-Path: <timbl@nxoc01.CERN.CH>
Date: Wed, 16 Oct 91 16:08:38 GMT+0100
From: timbl@nxoc01.CERN.CH (Tim Berners-Lee)
Subject: Re: WWW server at SLAC: Waterloo C
To: terryh@UNIXHUB.slac.stanford.edu
X-Envelope-To: terryh@UNIXHUB.SLAC.STANFORD.EDU

-index() is not ANSI, its unix, I used it by mistake, should be strchr(). Fixed in latest version.

-LogFile was my name, logfile is used in some WAIS code I link with sometimes, so I shall switch to logfile throughout.

> ERROR EDC0111 HTTCP C A1:194 Identifier sin_port must be a member of the struct or union
-HTTCP.c compiles on NeXT, sun-4, apollo-m68k, vax-ultrix, etc in the current version.
-It may be that you have a version which is slightly older, but things like sockaddr_in should be defined OK by the tcp.h file which caters for virtually everything.
-I suggest you stick with your fix until you get a more recent version, and if you still have a problem, we'll look at it.
-When you say it didn't compile under unix, which unix?

> DMSLIO201W The following names are undefined:
> EBCDICTO ASCIIUS

-These are the addresses of two arrays which coinvert characters from ebcidic to ASCII and back.
-They may be CERN special, but they work on MVS at DESY too.

> WRITE INET@ADD GTHSTBYN SOCKET BIND LISTEN READ
> SELECT ACCEPT GETPEERN INET@NTA SOCK@CLO GETHNAME

-This is the entire TCP/IP "socket" library! Sounds as though you need another disk or a another GLOBAL TXTLIB item and it will fix the lot.

> INDEX

-Use strchr() instead as above. I thought I had fixed that. It is fixed in the latest HTTCP.h.

=====================================================================

Return-Path: <TERRYH@SLACVM.slac.stanford.edu>
Date: Fri, 01 Nov 1991 14:27 -0800 (PST)
From: TERRYH@SLACVM.slac.stanford.edu
Subject: www
To: TERRYH@UNIXHUB.slac.stanford.edu
X-Envelope-To: TERRYH@UNIXHUB.SLAC.STANFORD.EDU

From: timbl@nxoc01.CERN.CH (Tim Berners-Lee)
Subject: Re: "HTDaemon on slacvm
To: terryh@UNIXHUB.SLAC.STANFORD.EDU (Terry Hung)
Message-id: <911101322.AA10441@nxoc01.cern.ch>
X-Envelope-to: terryh@GREENJAY.SLAC.Stanford.EDU

-Well done! Now you have got over those problems, the rest should be easier (and more rewarding!)

-FGET and FSEARCH are both exec files which return data as lines on the CMS "stack".
-It is very important that under all circumstances they exit with a return code equal to the number of lines on the stack, ie
  
  exit queued()

-If there is an error they can either put an error message on the stack, or they can if desperate return something negative or
-(In the very latest version of FINDGATE C which you don’t have probably but is on SERVUS02 191 on CERNVM the C code also traps very large return codes which normally are runtime crashes in the exec file.)

-You may want to modify FINDGATE C to make your own version.
-If you are happier programming in REXX than C, I would pass the whole document address, search or not, across to an EXEC file.

-Otherwise, you could just hack the PGET and FSEARCH from SERVUS02 191 to produce in the short run a test file.

-Run the daemon with the command

  HYTDAEMON -v -a *:8000

The -v asked for debug information, the -a *:8000 tells it to listen on port 8000.

Tim

---

Terry Hung (e-mail: terryh, ext: 3618)

---

Terry Hung (e-mail: terryh, ext: 3618)
Subject: old WWW mail - 3/3 (fwd)
To: addis
Date: Wed, 20 Nov 1996 11:23:43 -0800 (PST)
Reply-To: terryh@slac.stanford.edu
X-Mailer: ELM [version 2.4 PL25]
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit
Content-Length: 2920
Status: 0

Forwarded message:
>From terryh Mon Sep  9 16:53:43 1996
Subject: old WWW mail - 3/3
To: cottrell
Date: Mon, 9 Sep 1996 16:53:43 -0700 (PDT)
Reply-To: terryh@unixhub.slac.stanford.edu
X-Mailer: ELM [version 2.4 PL25]
MIME-Version: 1.0
Content-Type: text/plain; charset=US-ASCII
Content-Transfer-Encoding: 7bit
Content-Length: 2536

Les,

The following is part three of three, it is the mail from Paul and Tim regard
SLAC's WWW server. According to the second mail, SLAC's WWW server was up shortl
before 12/13/91.

Index
1. 12/12/91 WWW
2. 12/13/91 WWW to SPIRES on SLACVM - Experimental

=================================================================
Return-Path: <pfkeb@kaon.slac.stanford.edu>
Date: Thu, 12 Dec 91 18:16:52 PST
From: pfkeb@kaon.slac.stanford.edu (Paul Kunz)
Subject: WWW
To: BOHEIM@slacvm.slac.stanford.edu, addis@slacvm.slac.stanford.edu
Cc: terryh@unixhub.slac.stanford.edu
X-Envelope-To: terryh@UNIXHUB.SLAC.STANFORD.EDU

VMid 'SPICELL' is running the WWW daemon. The PROFILE EXEC on
SPICELL 191 has been setup correctly, I think. All the source for
WWW is on SPICELL 192. I have not put the INSTALL EXEC on its 192
disk.

So I think you can put SPICELL in the autolog list of service VMs
and we should be in business, at least for Tim Berners-Lee demos in
San Antonio.

"It's up to you now to find someone to work on it for
further enhancements, etc." I'll get back to my normal work.

=================================================================
Return-Path: <timbl@nxoc01.cern.ch>
Date: Fri, 13 Dec 91 17:55:53 GMT+0100
From: timbl@nxoc01.cern.ch (Tim Berners-Lee)
Subject: WWW to SPIRES on SLACVM - Experimental
To: www_interest@cernvax.cern.ch, www_talk@cernvax.cern.ch
Cc: pfkeb@kaon.slac.stanford.edu (Paul Kunz)
X-Envelope-To: terryh@UNIXHUB.SLAC.STANFORD.EDU

There is an experimental W3 server for the SPIRES High energy Physics preprint
database, thanks to Terry Hung, Paul Kunz, and Louise Addis of SLAC. It's only just
been put up, so don't expect perfection. With the W3 line mode browser, follow
link to it from our home page, then type for example

K FIND AUTHOR KUNZ

the "FIND" is necessary at the moment, though it may change later.

- Tim

Paul Kunz wrote a few days ago:-

"The SLAC Library maintainer of SPIRES databases, Louise Addis, is absolutely
delighted. She will ask for a permanent VM service machine and finish off the
polishing. Things are really moving now."

"By the way, we certainly have the impression that accessing SPIRES from www
a UNIX machine is faster than using a terminal logged into SLACVM. Even a real
3278 terminal is not as fast. Actually, accessing CERNVM FIND via www seems
faster than logging into cernvm and doing the same command as well."

--
Terry Hung (e-mail: terryh, ext: 3618)

--
Terry Hung (e-mail: terryh, ext: 3618)
/ * REXX please - Run Daemon */
address command
Say 'Access the disks for TCP/IP'
'EXEC GIME MAINT 585 (MODE -P)'
'EXEC GIME TCPPMNT 280 * READIT (MODE -P) /* TCP/IP source
'EXEC GIME TCPPMNT 410 * DACUR (MODE -P) /* TCP/IP base
'EXEC GIME TCPPMNT 412 * DACUR (MODE -P) /* TCP/IP text
'EXEC GIME TCPPMNT 441 * DACUR (MODE -P) /* TCP/IP last updates fixes

Say 'Indicate to CMS which libraries to search'
'GLOBAL TXTLIB EDCBASE IBMLIB CMSLIB'

Say 'Access the disk with all the indices of XFIND'
'EXEC DROP Z'
'EXEC GIME TESTSERV 201 Z'

Say 'Start the DAEMON'
'HTDAEMON -v -a *:8000 -l findlog'

Terryl 1973
This is dated 9/1/91
Copy experiments w/ this screen
SLAC MEMORANDUM

21 Sep 1994

To: Appendix to WWW Wizards report to C. Dickens
From: WWW Wizards Committee
Subject: Brief background info on Web at SLAC

--------------------------------------------------------------------------------

HISTORY:

1. The World-Wide-Web (WWW) was developed at CERN by a group led by Tim Berners-Lee. Paul Kunz spotted its potential for providing easy access to the SPIRES databases during one of his trips to CERN in 1991. He and Terry Hung immediately installed a browser and server on a NeXT machine and also on SLACVM and called it to the attention of the library. Subsequently George Crane wrote a WWW interface to SPIRES which was quickly added to the then CERN front page. This early link to SPIRES was influential in quickly increasing the use of the Web in the particle physics community. (Currently, searches to SPIRES-HEP number over 70,000/month and is still the most used portion of the Web at SLAC.)

2. A ad-hoc group calling themselves the WWWizards started meeting late in 1991 under the sponsorship of the library and more informally, SCS and later SLD. The Wizards have been a totally volunteer effort and have considered themselves a 'working group' rather than a committee, meeting fairly regularly each fortnight.

MILESTONES - several events were important not only to the Web at SLAC but in laying the foundations for the explosion of Web use which we have seen in the last year.

1. Tony Johnson of SLD developed a full-screen X browser which he called MidasWWW. (The first X browser had been a very handsome but buggy 'Viola' whose developer, Pei, had gone on to other projects.) MidasWWW could display all sorts of graphics, including compressed Postscript. This opened the way for the SLAC Library to start providing postscript versions of the electronic bulletin board papers actually linked to records in the SPIRES-HEP database. (As of Sept 1994, over 9000 full-text preprints were available to the particle physics community via WWW-SPIRES.)

2. Tonyj received a development grant from the ill-fated Texas Research Comm. for further development of MidasWWW in connection with SSCL experiments.
The development of XMosaic followed in the footsteps of MidasWWW incorporated many of Tonyj's innovative ideas into the family of Mosaic browsers supported by the National Center for Supercomputing at Urbana.

3. Addis, Tonyj, and others visited Paul Ginsparg at LANL, the developer of the highly successful physics preprint bulletin boards (electronic preprint archives) and introduced him to the potential of the Web as a means of providing access to the xxx.lanl.gov server. Tonyj installed MidasWWW on a Sun workstation in Ginsparg's office and subsequently, the Web server at XXX has become one of the busiest in the Particle Physics Community.

4. Bebo White put in place servers on other platforms, installed a Gopher server for linkage to WWW, and in so far as time permitted, started to maintain a number of the pieces of the Web at SLAC. Bebo also was invited to CERN for a month to work directly with the Web group there.

5. Winters put in place an 'official' SLAC home page (in reality a complex of pages) and a mechanism for handling the exacting process of organizing, maintaining and changing this material in an orderly, timely fashion. Since that time, almost 300 significant changes have been made to the home page in response to expressed needs of the SLAC community. Over 685 hypertext links must be maintained to insure the integrity of the home page complex.


7. The Committee on Future Computing at SLAC suggests WWW as a lingua franca for tying together the SLAC community on diverse computing platforms.

PRESENT STATE OF THE WEB AT SLAC:

At this time, Sept 1994, the Web looks as follows at SLAC:

1. SERVERS - At least five and probably more 'servers' (needed by information providers only) are running at SLAC on various platforms:

   a. SLACVM - The original CERN VM server, now an antique, is still the main server for the SLAC 'Home Page' and by necessity, all the SPIRES searching via WWW.
Statistics: currently averages 6300 requests/day of which about 50% are direct SPIRES searches.

Comments: This server was the source of pride in the early days of Web when SLAC was a leader and innovator in providing various services. Now, this server is an embarrassment since it is outdated code which doesn't work with many of the standard browsers (i.e. Mac-Mosaic). The moratorium on SLACVM development has meant that we have fallen further and further behind other facilities. Many places provide links to our SPIRES-HEP searching and several have started issuing warnings to their users about the out-datedness of this server, with instructions for special steps which users must take to successfully use it.

b. Unix - Modern servers are running on several Unix machines.
Statistics: None

c. VMS - SLD runs a server on SLACVX to handle their special needs for shift scheduling and other projects.
Statistics: ?

d. NEXT - Two CERN servers (one latest version) run on LIBNEXT in the Reason cluster (maintained by George Irwin). The intention is to run the latest CERN server at both ports 80 and 5080 to serve the full-text postscript preprint files.
Statistics: ~650 document requests/day

a. Browsers:

FUTURES:

Areas needing attention:

1. Technical - most urgent. support issues

2. Home page issues
   Policy issues, Winters may want advisory committee??
   Need glitzy version of page (Rene Donaldson?) for 'public' access

3. Security and privacy

4. User education, i.e. WWW User group
SLAC MEMORANDUM 21 Sep 1994

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From: WWW Wizards Committee (Add's)

Subject: Brief background info on Web at SLAC

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SLAC Library begins with the charge from Director W.K.H. Panofsky to actively and promptly acquire preprints in high energy physics, catalog preprints fully (and promptly), and include every author no matter how many there are. Library starts with several boxes of CERN reports donated by kindly physicists.

1969-70

Computers become more powerful and development begins at Stanford University of what eventually becomes the SPIRES DBMS with the SLAC Library as a primary test site.

1969

The APS Division of Particles and Fields and the AEC sponsor community-wide distribution of SLAC's weekly list of new preprints, Preprints in Particles and Fields. (PPF) Hundreds of physicists pay an annual subscription fee to get PPF weekly by airmail. Those in faraway places often complain that they can't actually get copies of the preprints on the list or that they come very late (PPF continues hardcopy publication until Fall 1993.)

Dubious and hostile journal editors are mollified by a PPF section called Anti-preprints, which lists journal references for recently published preprints.

SLAC Library systematically looks for publication information for preprints, discards published preprints, annotates its card catalog with journal references.

1970's

We are told that full-text databases are just around the corner and that soon we will not need books.

1974

The SPIRES-HEP (High-Energy-Physics) database begins. Best estimates predict a steady state not larger than 5000 bibliographic records.

SLAC now annotates the bibliographic records in the HEP database with publication information (as well as its card catalog) and continues to trash dead preprints.

The SLAC and DESY Libraries team up to jointly create the HEP database (a collaboration which continues to this day). DESY contributes physicist-assigned TOPIC indexing and bibliographic records for articles which were never preprinted.

1975

An average of 70 preprints/week arrive in the SLAC Library.

1979

Donald Knuth at Stanford publishes a description of his new text formatting system called TeX. It provides a way to get high quality mathematical text
using simple ASCII characters as input.

early 80's

More and more physicists ask to continue their computer accounts when they leave SLAC so that they can consult SPIRES from their new home institutions.

1980

An average of 97 preprints/week arrive in the SLAC Library

1982

SLAC Library becomes first library at Stanford to throw out its card catalog.

mid 80's

SLAC computing moves to an IBM VM/CMS system which is hospitable to creation of 'servers.' George Crane of SLAC's Computing Group develops 'Remote SPIRES,' and the QSPIRES server starts up on Bitnet.

Now it is possible to query the SPIRES-HEP database without actually having an account on the SLAC computer, by sending messages or e-mail to the QSPIRES server. At its peak, QSPIRES is responding to inquiries from 662 nodes in 44 countries and has almost 5000 registered non-SLAC users.'

1985

An average of 116 preprints/week arrive in the SLAC Library.

A total of 11,757 records are added to SPIRES-HEP (includes preprints, reports, unpreprinted journal articles, theses, etc.)

1980's

Everyone is talking about the 'paperless' office as they acquire new higher speed printers..

Most particle physics graduate students write their theses using TeX and though everyone complains about having to learn the notation, TeX is widely used in the particle physics community.

1990

An average of 143 preprints/week arrive in the SLAC Library.

17,938 records are added to SPIRES-HEP. The database passes the 200,000 record mark.

Aug 1991

The revolution begins - Part 1:
Paul Ginsparg, a theoretical physicist, starts the first e-print archive at hep-th@xxx.lanl.gov and invites fellow string theorists to deposit the TeX source for their new preprints by e-mail. New preprints are announced and distributed by listserv. Hep-th is successful beyond the wildest of dreams owing in large measure to the talents of Ginsparg who combines his many good ideas with actual computer smarts. It is now possible for any physicist
on the Internet to keep up with the preprint literature.

An excellent article about the e-print archive development and futures is:,
First Steps Towards Electronic Research Communication by P. Ginsparg,
Computers in Physics: 3, 390 (Jul/Aug 1994)

Aug 1991

SLAC Library hastens to add a field for 'bulletin board' number to the
SPIRES-HEP database (for a long time the e-print archives are called 'bulletin
boards'). The first number is HEP-TH 9108001 based on the year and month
and unique series number. A TeX expert is hired parttime to obtain papers
from bulletin boards, TeX them and pass the hard copy along to the library
catalogers for entry in SPIRES-HEP.

Late 1991

The revolution continues, Part 2.

Paul Kunz, a SLAC physicist, brings word of the World-Wide-Web
development by Tim Berners-Lee and a group at CERN, our sister laboratory
in Geneva, Switzerland. Kunz immediately sees its potential as a way to
streamline access to the SPIRES-HEP database.

Dec 12,1991

The first U.S. WWW server is established at SLAC to provide access the the
SPIRES HEP database. G.Crane provides an interface between the Web
server and SPIRES.

1992

As we learn how to use the features of WWW, we start linking bulletin board
preprints to their TeX source on the servers at Los Alamos. This isn't really
full-text but it's a lot better than nothing. SPIRES creates the html
dynamically and presents it to the W3 server.

More bulletin boards appear. astro-ph, hep-ph, hep-lat, gr-qc, nucl-th.and
the TeX burden increases.

QSPIRES users are encouraged to change to WWW and some do.

1992

Tony Johnson, a physicist with the SLAC-SLD experiment, releases the
MidasWWW browser for X. It allows viewing of postscript files on the
Web and even handles compressed postscript.

Spring 1993

The SLAC Library acquires a NeXT and a 1.3 gigabyte disk and starts to take
the 'next' step by converting the TeX DVI files to postscript using the DVIPS
program on Unix. The files are then compressed and stored on a WWW
server disk. Figures are requested by e-mail from authors, faxed to our
NextFAX, converted to EPS format and posted with the basic text on the
SLAC postscript server (preprint.slac.stanford.edu).

SPIRES-HEP can now be searched using the MidasWWW browser on an X-
terminal and the genuine full-text complete with equations and often figures
can be displayed or printed.

June 1993

The full text service is made public.

1993

A new X browser called Mosaic is released by NCSA. It has many of the features of MidasWWW and the full support of a large organization. With the availability of Mosaic, Web use starts to gain momentum.

Aug 1993

SPIRES-HEP now receives about 38,000 queries/month. Of these, 15,000 are thru WWW.

Dec 1993

SPIRES-HEP averages 178 new preprints each week and more than 20,000 new records are added in 1993 (remember that HEP isn't just preprints!).

Jan 1994

Paul Mende of Brown University gives us a present of his automatic texing program and installs it for us on our own system. With some tuning and additional scripts, the whole process of ftping tex source from various e-print archives and trying to tex them and update the tracking and abstracts database is automated. Eventually it handles about 55% of all the e-print papers completely. We still, however, must carefully check each one for viewability and printability and manually deal with the remaining 45%.

DESY and CERN give us a hand with TeX to postscript, but with the advent of automatic processing distributed texing becomes less effective.

1994

Additional features are added to the SPIRES-HEP service thru WWW. It is now possible to see who has cited any of an author's papers and go directly to the full-text if the citing paper appeared on a bulletin board (now called the politically correct 'e-print archives').

1994

Ginsparg at LANL starts to link to the SLAC postscript server in order to supply .ps.Z files as well as the TeX source. Others start setting up shadow servers to have the postscript versions closer at hand. (Networks are the limiting factor. Not everyone has fast enough connections yet to make postscript viewing feasible).

1994

Use of WWW explodes to the world beyond physics.

Apr 1994

An e-print archive for experimental particle physics (hep-ex) is started.

Sep 1994
SPIRES -HEP averages 187 new preprints/week, more than 65% as e-prints.

The total size of the database now reaches 292,000 records. (Remember that HEP isn't just preprints.)

Sep. 1994

SPIRES-HEP is now getting 83,000 queries/month, 65,000 of them thru WWW.

Sep 1994

Hrvoje Galic of the SLAC Library adds 3000+ links to non-eprint papers stored on servers at the various labs. He also starts adding links to the Nuclear Physics (journal) server provided by Elsevier and accessible only to organizations whose libraries are subscribers. We hope fervently for more such journal links in the future as other publishers join in. We also hope for something better than TeX source from publishers in the future.

early 1995

The total size of the database passes 300,000 records! Bob Gex has probably proofed almost every one of those records during his years as cataloger extraordinaire.

Mar 1995

SPIRES-HEP is now getting more than 100,000 queries/month, mostly thru WWW. SLAC and DESY libraries together are processing between 600 and 700 TeX e-prints/month.

Ginsparg and his group start work on a more comprehensive auto-TeXing program and establishing better submission standards for authors.

1996

At SLAC, Harv Galic establishes links with Phys.Rev.D and starts receiving all Phys.Rev.D papers before publication so that they will be 100% represented in SPIRES-HEP.

Dec 1996

Total size of SPIRES-HEP database exceeds 338,000 records. Of the almost 20,000 records added in 1996, 10,880 are available on the internet as full text documents via WWW.

All TeX processing is now done at the e-print archive machine. E-prints are now available in both postscript and PDF formats.

SPIRES-HEP now gets more than 200,000 queries/month via WWW.
I was so excited that I almost dropped the book.

I was reading *Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web by Its Inventor*, by Tim Berners-Lee. The paragraph that caused such a reaction described how Paul Kunz, a California physicist, had returned from a visit to CERN (Conseil Européen pour la Recherche Nucléaire; now officially named the Organisation européenne pour la recherche nucléaire or European Organization for Nuclear Research) in Switzerland where he had seen an interesting technology developed by Berners-Lee. Kunz came home to the Stanford Linear Accelerator Center (SLAC) and told Louise Addis, a SLAC librarian, about this new invention, the World Wide Web.

Berners-Lee states that Louise saw the Web "as a godsend - a way to make SLAC's substantial internal catalogue of online documents available to physicists worldwide." [1] He further states that "under Louise's encouragement SLAC started the first Web server outside of Europe." [2]

The first Web server created in the United States - set up anywhere outside of its birthplace at CERN - was established at the encouragement of a librarian!

As someone working in both the Web world and the library community, I decided then that I had to meet, or at least talk to, Louise Addis. I knew that I could learn something from the librarian who saw the potential in this revolutionary technology before the majority of the world had even heard of the Internet.

I tracked Louise down using the Web (of course!) and e-mail. When we first spoke on the phone, I told her how excited I was to meet the person who was responsible for setting up the first Web server in the U.S. Louise laughed and disclaimed total responsibility for bringing the Web to America. She told me about her colleagues, Paul Kunz and Tony Johnson and others, who were critical to the launch of the first Web server at SLAC. At one point in the conversation, she noted that the history of the Web technology is rather like *Rashomon*, Akira Kurosawa's 1951 movie in which the same story is told from widely diverging perspectives. It appears to be true that there are a number of stories about how the Web came to America. This is one of them. - Melissa Henderson.

*First Monday* (FM): Could you first tell me a bit about your academic background? Where did you study for your undergraduate degree?
Louise Addis (LA): I studied International Relations at Stanford University. I always had an interest in the sciences, however.

FM: And from Stanford?

LA: I initially went to work for a publisher of the "Dick and Jane series" in the claims department and as a sales correspondent. I then moved to the Stanford Research Institute Radio Science Lab where part of my job was handling classified documents. I was thinking about going to library school when a colleague encouraged me to apply for a position in the soon-to-be-opened library for Project M.

FM: Project M?

LA: "Project Monster" now known as the Stanford Linear Accelerator Center. At that time, it was still on the drawing board and had no funding. We started our library in a warehouse on the Stanford campus. It was the hottest place on campus; they ran water on roof to make it more bearable!

FM: How long were you at SLAC?

LA: From before the beginning! It was very exciting to build a library. I started as the assistant to the librarian in 1962 and retired in 1994 as Associate Head Librarian. Since retirement, I have continued to work off and on for the SPIRES-HEP database project at SLAC and most recently on Y2K conversion.

FM: What were you working on in your early years at SLAC?

LA: From about 1969 on, I was working with the SPIRES-HEP database of particle physics documents. SPIRES (initially, Stanford Physics Information Retrieval System, then Stanford Public Information Retrieval System) database management system was the product of brilliant programmers at Stanford. SLAC was a guinea pig for SPIRES, which was originally designed for an IBM mainframe environment. SLAC sponsored development of the Unix version, which is now in use.

FM: Did anything in your education or background prepare you for the higher level computing work you were doing with SPIRES-HEP or the Web?

LA: I got into programming and database development by picking up information on my own. If I needed to know something, I asked someone to show me how to do a particular task. Then I went back to the Library and tried it on my own.

When the SLAC Library was started, the Stanford University computing center was a little building with keypunch machines and a line printer. At the Stanford Research Institute, I had seen an "advanced serials handling system" which meant that each serial had its own punch card. This was cutting edge! So when we built the Library at SLAC, we put the serials on punch cards. I remember walking across campus with my stack of punch cards. So advanced!

FM: What was so important about SPIRES-HEP database of particle physics documents?

LA: There weren't any library database management tools available at the time and SLAC
needed something to meet the unique needs of particle physics researchers. Research papers produced by the particle physics community often have hundreds of authors. The record is 1,200 authors! We were committed to listing all authors or researchers and needed a tool that would accommodate us.

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The SPIRES-HEP database covers the full literature of particle physics and is a collaborative project between a number of particle physics labs, primarily SLAC and DESY in Hamburg. It's so very flexible, so it's constantly developing. We've always been able to easily manipulate the database to do whatever we needed to do.

Of course, there are two sides to any database - the technology side and the content side. The content side is really what ultimately determines the value of any database. Bob Gex, then chief librarian at SLAC, was responsible for the content side, along with our long-time and remarkable preprint librarian, Rita Taylor. And from the beginning, there have been major contributions of content from our DESY partners.

FM: When did the Web first arrive at SLAC?

LA: On December 12, 1991, the first Web server in the U.S. was established at SLAC to help improve access to the SPIRES-HEP database. For a number of years, SLAC had been providing remote access to the SPIRES-HEP database. In fact, by the time we launched our first Web server, the SPIRES-HEP database had nearly 5,000 registered users in 40 countries.

George Crane had developed a remote interface, initially using BITNET. Researchers could send a search query to SPIRES-HEP via an interactive messaging tool, which was sort of like the instant messaging tools of today. Or they could request information via e-mail. When Internet access came along, the interactive messaging was no longer available; researchers had to use e-mail. Researchers were less satisfied with the e-mail interface; they liked the instant response system better.

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FM: Was this a motivating issue when you first thought of setting up a Web server?
LA: Well, the real motivating issue was a project that we been working on earlier. In 1989-1990, I was helping set up a library at the Superconducting Supercollider (SSC) project in Texas. Pat Kreitz, the SCC librarian, wanted to use the SPIRES-HEP database and wanted to present it to the SSC community in a seamless way within a graphical user interface. SSC had funded the development of an X-Windows interface to do this, but as soon as I saw the Web in action, I knew that it was a fast, cheap solution.

I can still remember the day Paul Kunz appeared in my office after his trip to CERN. He showed me the Web and we started moving right away. I scurried around and got some accounts that were needed. Paul and Terry Hung set up the server on our mainframe. George Crane was able to easily extend remote SPIRES to talk to the new interface. And I was able to make the SPIRES-HEP database write HTML.

I've always felt deeply indebted to Paul for spotting the potential of the Web for our situation and for helping develop the first Web server at SLAC, which proved that potential.

FM: This sounds like it was really a team effort.

LA: It was! While I was working on this project - and for most of my other projects at SLAC - I was constantly seeking input and advice from colleagues. There was almost always someone around who understood the most arcane, technical issues and was willing to help or to give advice. Sometimes conflicting advice!

FM: Did this teamwork model work?

LA: Yes, it was the only way any of these projects could continue. None of us got raises or payment for this work. We did some of it on our own time. We knew that there was value in the work - and it was fun! (I hope my colleagues would agree.)

By February 1992, I had twisted enough arms to start an ad hoc Web development and support group, the WWWizards. The initial group was made up of Mark Barnett, George Crane, Tony Johnson, Joan Winters, Bebo White, all of whom brought important skills to the project.
The original WWW Wizards at SLAC visit Paul Kunz. Left to right: Louise Addis, George Crane, Tony Johnson, Joan Winters, Paul Kunz, and a NeXt computer (missing: Bebo White and Mark Barnett). Photograph courtesy of the Stanford Linear Accelerator Center, Archives & History Office, Stanford, Calif.

Again, I have to mention that in the beginning this was not part of our regular jobs. Luckily, the SLAC Computing Center was quite supportive. Les Cottrell, the assistant director of computing, could certainly have discouraged the computing staff from participating. Instead, they were able to work on the WWWizards team and to support this unsupported software. And, they helped run the server on their computer!

FM: Did you have any idea then of what the Web would become?

LA: No! I was just hoping it would survive at SLAC. For a long time, the Web suffered from the stigma of being unsupported software.

My goal was simply to provide better community access to the particle physics literature via SPIRES-HEP.

FM: Was SLAC a good environment for developing new tools, such as SPIRES-HEP or the Web?

LA: Yes! We always had the ability to respond quickly and be flexible. This was particularly
instrumental in the development of the Web. When Paul Kunz came back from Europe and said, "Let's do this," the Library could move ahead.

And as soon as we were on the Web, we were able to start linking the records in our database to the TeX source at Los Alamos National Laboratory (LANL) where, in August 1991, Paul Ginsparg had started the first e-print server. Paul, by the way, almost single-handedly made another kind of revolution in the way scientific literature is handled ... but that's a whole other story.

As soon as we were on the Web, we were able to start linking the records in our database to the TeX source at Los Alamos National Laboratory.

FM: How were you able to just jump right into this new technology?

LA: First of all, our faculty were used to using unsupported software. We didn't have manuals or training classes, but we did have all kinds of skills and knowledge available for something interesting. The Web was done entirely with volunteer labor at first.

Generally speaking, the Lab encourages experimentation, sometimes officially and sometimes not. The Web server project was something that the SLAC Library could jump right into because of our track record with SPIRES-HEP and our environment. All that had gone before made it easier to get management approval. Plus, the chief librarian, Bob Gex, was terribly supportive. I was lucky in that regard.

MH: Do you feel that development of resources such as SPIRES-HEP has gone faster with the implementation of Web technology?

LA: Oh yes. In fact, this was one of the things that really sold me on the web - it was easy! The underlying Web server and Web browser programming is more technically complex, but creating the resources is much easier. For example, the x-windows project relied on programmers who could manipulate a more complex system. On the other hand, the Web allows for easy development of resources; you can make the page look exactly the way you want without deep programming.

FM: The particle physics world seems tailor-made for the World Wide Web - or should I say that the Web was tailor-made for the physics world?

LA: Absolutely! There is the issue of the need for rapid communication in a field that has a slow publication schedule. Additionally, the particle physics community is made up of very large groups of scientists all working on the same project, but from remote, diverse sites.

Also, these folks are used to trying something new. When we notified our registered users about how to get a free browser from Tim at CERN, many did right away. They wanted to get to our database, so they were really motivated to get that browser and get on the Web. This
helped spread use of the Web in the particle physics community and it also helped people learn about the archives at LANL.

FM: What about the democratizing of the publishing process?

LA: Gray literature is a very important part of the particle physics world. One of the great things about the Web is that it democratized access to these resources. Before electronic communication people who were further away from population centers or technology centers were really behind. They had no way to find out quickly about research.

*Gray literature is a very important part of the particle physics world. One of the great things about the Web is that it democratized access to these resources.*

Before machine-readable, full-text e-prints were available, paper preprints were mailed by the author or the institution only to major institutions. And researchers at smaller institutions didn’t receive the preprints. The only way to find out about these articles was through a preprint list such as the one SLAC published weekly. The researcher then had to request the actual article through the mail. This was too slow.

FM: And the interactive nature of the Web?

LA: In large particle physics collaborations, the experiment may take years from conception through publication. And there may be hundreds of physicists around the world working on these projects. They are all producing materials that need input from others.

Many papers are almost dialogues. Papers go through revisions. Discussion is a big part of the process. Physicists really needed that ability to interact quickly.

The Web was a revolution!

FM: Back to your career development, did you feel more affiliated with the library community or the particle physics community?

LA: Much more affiliated with the particle physics community. Our issues were so different from what others in most libraries were experiencing. In a special library, you have to know your community and listen to them. They’re the people that need the library.

FM: Doesn’t this apply to all libraries?

LA: More so to special libraries, which are vulnerable and can be more easily closed.

FM: What do you think is the response to this vulnerability?

LA: We need to apply other skills and expertise in order to allow the library to succeed. You
FM: Interviews: Louise Addis

almost never have all the skills you need. You have to find them elsewhere. For example, at
the SLAC Library we wanted to make PostScript files and graphics available via the Web,
rather than just linking to the TeX sources. So, when Tony Johnson developed Midas, the first
GUI browser that was bug-free enough for us to use, he added capability for reading and
displaying postscript. This was the kind of development done on someone’s personal initiative.
This is skill and interest that you cannot buy. Also, Tony had the breadth of knowledge of a
particle physicist’s needs and a willingness to tinker.

FM: So, we’re back to an environment of experimentation ...

LA: Yes, a lot of environments don’t make it easy to go outside or take risks and that’s what is
required to be visionary. You can’t pay attention to things like job descriptions.

FM: Is there anything that concerns you about the development of the Web?

LA: I’m concerned about commercialization. The Web has been a democratizing place. Now,
we’re moving toward large entities controlling most content - or the content that most people
see. You can get to other sites, but these services shape your experience. AOL tells you the
story of the day and offers you its preferred links.

On the one hand, anyone with a little curiosity can find things they’d never dream of having
access to. But portals do control what a lot of us see - or have time to see! But this has always
been true of the media; the Web is just another instance of this.

FM: What about the issue of the digital divide? Or does this problem not exist in the academic
community?

LA: Actually, this has been a continuing problem for some of the remote or less prosperous
regions of the world. In the U.S., a small physics department in a small school may have a
slow line or slow equipment.

When I was at SLAC, we always created pages in formats that were much simpler than what
was technically possible. Harv (Hrovje) Galic, the HEP database manager at that time,
originated much of our early Web interface. Harv was adamant about trying to have pages that
could be easily read in some of the less prosperous parts of the particle physics community.
Harv was from Zagreb and had a real awareness of the constraints faced by many of his
colleagues.

In fact, we were occasionally ridiculed because our pages didn’t have graphics; but this was
done purposely. The main reason was because many of our users didn’t have the capability to
see graphics - or graphics were an impediment on a slow system.

The digital divide is real. It’s less of a problem in academic communities where the issue is
fast or slow connection. Or good network support and stability. In society as a whole, the issue
is having any access at all.

FM: Finally, do you think many folks will be surprised to learn that the first Web server in the
U.S. was installed to help support a library project?

LA: Not at all! To me, it’s really significant that our own early success story on the Web was
driven by the need to bring a large body of carefully organized bibliographic records, SPIRES-HEP, to its worldwide audience!

The Web has certainly proven to be a shiny but challenging new tool for librarians to use in their crucial role as collectors, organizers, preservers, and presenters of information. Librarians will continue to play a critical role in helping to organize and provide access to information. Perhaps an even larger and more important role now that we’re in the "wild, wild west" era of Web content development.

Notes


2. Berners-Lee, p. 46.

Editorial history

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