Johnson, Tony S. Www Technical Committee Report. 12/1994

SLAC ARCHIVES COLL 00-072
SERIES SUBSERIES 4
BOX FOLDER 28

Tony Johnson December 1994

Tony Johnson, SLAC

History of WWW at SLAC

SLAC has oldest WWW server in the USA (over 3 years old)

- plus We have lots of experience!
- minus We have lots of ancient history

ad-hoc group of "WWWizards" WWW supported for first 2.5 years by an

addressed by success of the web formed, to address technical problems Last summer WWW technical committee

WWW Servers at SLAC

SLACVM -

Production (port 80), Test (port 5080)

SLD - (port 5081, port 8080)

Library

postscript preprints (port 80, port 5080)

Unix

www (80, ?), zwww(80,8888), z0, htmlgate

VAXes

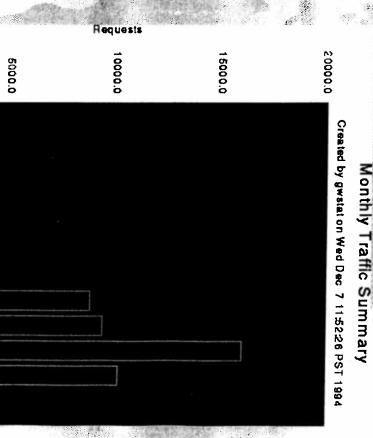
yeoman (nlc etc.) www-sld, www-bes, www-midas, slacvx

WWW Server Statistics

Web usage continues to grow exponentially SLACVM handles 7500 requests/day

— Mostly SPIRES

SLACVX handles 15000 request/day for one document



Jan Feb Mar Apr May Jun Jul Aug Sep

SLAC WWW server problems

SLACVM server too slow

- very high demand for SPIRES pages
- Single threaded increasing home usage
- SPIRES only on SLACVM (foreseeable future)

Unix www server (castor) overloaded

URL scheme has grown up randomly over last three years

All VM url's have /FIND prepended

unix (www) url's somewhat scs-centric

WWW privacy memo finished (Winters)

SLAC web - Addresses what is appropriate material on

sent to David Leith

WWW support memo finished

Addresses level of support required for transition from SLACVM

ongoing support

increased reliance on WWW as proposed by VM phaseout committee

Achievements contd.

New unix server (currently called zwww)

- on site since November

Plan to migrate from VM to unix in place

currently being implemented

(more details later)

Home page playpen set up

New services under development experiment with different home page layouts

Searchable index of SLAC pages

Achievements contd.

New unified URL scheme proposed

- (more later)

Plans for maintainance of html on unix

- Delegate authority to subgroups
- Use of ICVS
- Standards proposed for page template disclaimer page ownership

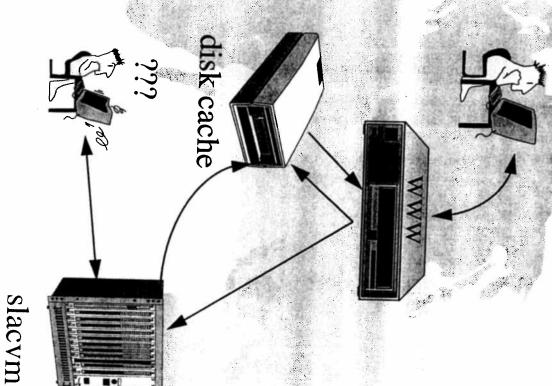
Plan for WWW server

Dedicated (unix) www.server.machine

- Maintained by SCS
- Standalone operation
- Encourage all SLAC groups to use this server

Run in proxy mode to support

- SPIRES
- migration from VM



Proposed URL scheme

To allow many groups to share www server we need:

- und hierarchy that
 allows different groups
 to control their own
 files
- consistent
- extensible
- minimize need to change rules file

top level directories

- /comp General computing
- /exp Experiments
- /slac General SLAC pages
- /grp SLAC groups
- /spires SPIRES
- /pubinfo Public information
- /owner Signatures

Examples

- /slac.html
- /slac/disclaimer.html
- /salc/phonebook.html
- /exp/sld/sld.html
- /grp/scs/slaconly/scs.html
- /owner/tony_johnson

Status of Migration

handle old + new url's www server and SLACVM server will

zwww server will handle only new url's

Need to change links in SLAC pages to use new url scheme

Hope to make zwww server the production server by early January

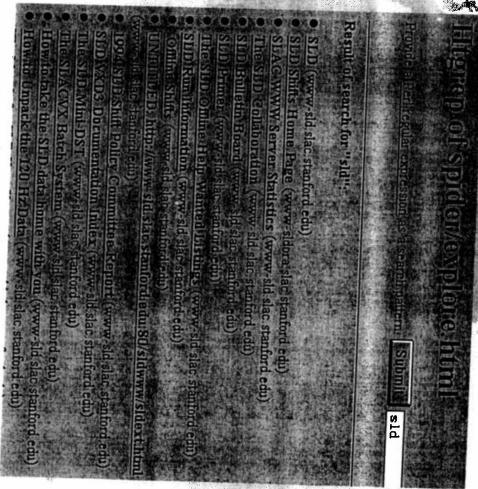
Hope to have everything except SPIRES off VM by next fall

Searching SLAC pages

We are experimenting with different home page designs

Also trying to make it easier to locate SLAC information by searching

- Using tools developed elsewhere
- Looking at wwwwais
- Collaborating with hepnrc



Contacting WWWTC

Plan to continue until migration to unix well in hand

- Agenda will reflect this bias
- Anyone interested in helping welcome to attend Minutes of meetings now online

Mailing Lists

www-l@unixhub

www-tech@unixhub

Anyone is welcome to subscribe/contribute

Tony Johnson, SLAC

Tony Johnson

December 1994

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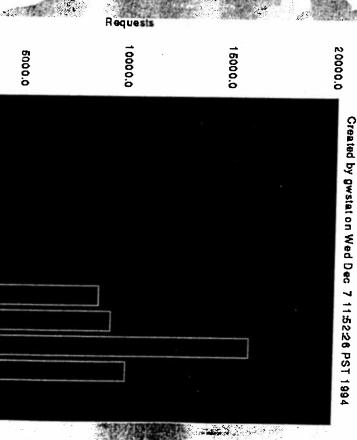
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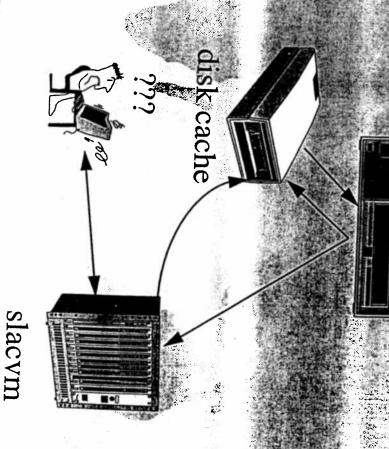
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Tony Johnson, SLAC

2/7/94

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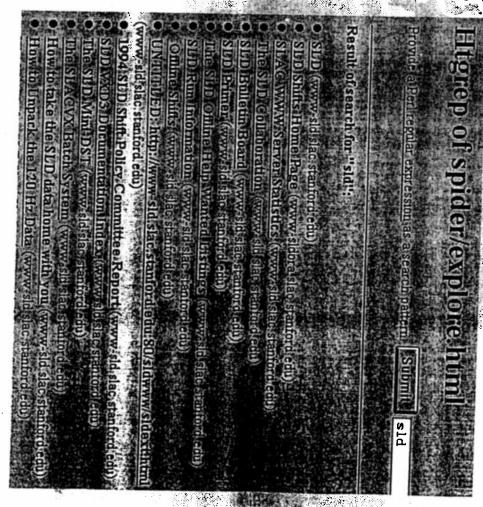
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Tony Johnson, SLAC

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Tony Johnson, SLAC

SLAC WWW server Proposed URL scheme for

DKYETPlease send comment to Tony Johnson

In this brief memo I propose a new naming scheme to be used for documents served from the central SLAC WWW server. This memo only addresses the URL naming scheme as seen by users of the web, it does not address where the documents are actually stored.

Why do we need this?

Currently most of our pages have names of the form:

/FIND/name.html

The present of the word FIND is purely a holdover from the fact that our VM server was originally based on the server being used at CERM for their FIND interface. The lack of any file hierarchy makes it very difficult to split the pages into manageable chunks, and as the number of pages we are serving grows ever larger this will become more and more critical.

In idea is to change the URL's of the files once, and then publicise the new URL scheme widely. The scheme is designed to allow us to implement it on VM, and keep the same scheme as we migrate to Unix. For some time we will have to support both the old and new URL-naming scheme.

URL naming proposal

This is a proposal for the URL naming scheme for SLAC. It addresses only the portion of the name that comes after the node name. The idea is to standardize the first few levels of the heirarchy, but to allow subgroups complete control over the heirarchy below the level described here.

```
\slac.html - Home page
\ - Synonym for home page
\slac\* - Top level SLAC pages (many of those currently
\slac\*
```

Special cases/examples

```
\frac{1}{4}
                                                                    */dz9/
                  - SLAC groups other than experiments
                                                                    */bsd/
                                                                    /dxb/scs/*
                                                                  */SFTƏ/
                                                                 \babar/*
                                                                   */səq/
                                    - SLAC experiments
                                                                   *\b[s\qx9\
        SLAC etc, stuff maintained by publications.
- Public information, eg description of SLAC, life at
                                                                   *\olniduq\
                       - Spires freehep database (eg)
                                                           /spires/freehep/*
          - Spires descriptions and database accesses
                                                                   *\spires\*
                                 (SIacSpeak)
                                                              /djossgrX/ferm
                            (Suddestion box)
                                                       /suggestion/winters
                     (SLAC phonebook (form))
                                                       \s]sc\phonebook.html
      (example of signature at bottom file)
                                                       /owner/tonyj_johnson
                          (slac disclaimer)
                                                      /slac/disclaimer.html
```

Other Considerations

The inclusion of /slaconly/ in any url restricts access to slac.stanford.edu nodes.

To the total to

SLAC ARCHIVES COLL 60 - 072
SERIES SUBSERIES S
BOX FOLDER 29

(January 11 - 25, 1992)

Visits to:

Second International Workshop on Software Engineering, Artificial Intelligence and Expert systems for High Energy and Nuclear Physics, L'Agelonde, France

HEPLIB meetings, L'Agelonde, France

Laboratoire de l'Accelerateur Lineaire, Orsay, France

MC++ Workshop, University of Lund, Sweden

Trip Report

Traveler:

Paul F. Kunz, Staff Physicist, Stanford Linear Accelerator Center,

Stanford University, Stanford, CA 94309

Dates of Trip:

January 11 - 25, 1992

Purpose of Visit:

To present two talks at the Workshop at L'Agelonde, attend the HEP-LIB meeting, visit LAL Orsay, and attend the MC++ Workshop at

University of Lund.

The main purpose of this trip was to give two talks at the Second International Workshop on Software Engineering, Artificial Intelligence and Expert Systems for High Energy and Nuclear Physics (L'Agelonde Workshop) and to attend the MC++ Workshop. HEPLIB meetings were held in conjunction with the L'Agelonde Workshop which I attended as well. The idle day between the workshops was spent visiting LAL Orsay. The MC++ Workshop portion of the trip was funded by the Swedish Natural Sciences Research Council.

L'Agelonde Workshop

This workshop (with the extremely long name) was the second in a series that started in Lyon, France, March 1990. It was some what better and yet less well organized than the first. The purpose of the workshop is to discuss in depth a narrow set of topics in computing in HEP than is done at the Computing in HEP series of conferences. The accommodations at L'Agelonde (a training site for France Telecom) were excellent with all meals catered by the site's staff. Except for the final days, the three major topics of the workshop were held in parallel and I attended the Software Engineering track.

The meeting was more of a mini-conference than a workshop and the tutorials were more like an extended talk. In what follows I've highlighted some aspects of the talks, which for me personally, I found interesting, but which don't do justice to the whole workshop.

Claude Vogel's (C.I.S.I.) tutorial on CASE tools was given from perspective of work in the field of Artificial Intelligence. His terminology was quite different, but the net result was the same as when one discusses object oriented design in context with C++. In particular, he referred to class hierarchy as "taxonomy" which he felt should almost never be deeper than five levels. The example he used is the following...

unique root: life form

life form: animal or insect

generic: cat

specific: lion (always built from one above)

variety: mountain lion

I found that Marcel Kunze's (Ruhr University) tutorial overlapped my talk quite a bit in the areas of use of UNIX and in programming languages. Namely, that HEP is in a software crisis because FORTRAN doesn't deal well with the complexity that must be dealt with in our computing systems. And that in the UNIX environment there are far better native tools than the ones we traditionally have used in the IBM and DEC mainframe environments. Kunze's characterization of the C programming language, for example, was...

- It was designed for systems programming, thus ideal for on-line work.
- It is strongly coupled to use of UNIX.
- It has only 32 keywords, while FORTRAN has 74.
- The C preprocessor is very powerful and using it replaces the need for CMZ or PATCHY.
- It has memory management built-in the language and using it replaces the need for systems like ZEBRA.

J.M. Nerson's (S.O.L.) characterization of software quality was interesting: correctness, robustness (withstands abnormal use or events), extensibility, re-usability (for new development), and efficiency. He then proceed to show how an object oriented language helps one to achieve this quality.

René Brun's (CERN) talk on KUIP and its Motif interface was interesting because it represents views which are frequently quite different than my own and that it gave background philosophy

which help explains why things were done the way they were. For example, René feels that a user can only remember about 25 commands to any application and PAW contains about 250. Thus a beginner needs a WYSIWYG interface to get started. However, René didn't seem to pleased with the Motif interface for experts, which he feels will continue to use the command line interface to PAW. Also his stated goals for the Motif interface was to take an evolutionary approach in a world of fast changing technology, to maintain portability across platforms, to allow customize-ability, and to avoid impressive gadgets that are limited to one platform. I think on the latter point he might have been referring to my own work. In order to met this goals, they have rejected use of Motif's UIL because it was specific to Motif, and rejected the use of an interface builder package. Instead, they have invented their own. René also introduced some plans for the future. Namely what he calls object-driven features and lists which seemed to be needed to implement the browsers so common in applications built at SLAC in the NeXTstep environment.

René Brun also gave a talk on tuple viewers which was mostly his standard talk on PAW. The latest version uses the KUIP/Motif interface described above. Noticeable in his screen dumps was how fast the screen fills with his "short-cut" panels. In this talk he announced plans to introduce "super-tuples". These would allow 2d tables, and data typing. The format to specify the tuples would be identical to a FORTRAN common block, e.g.

```
"ntrk, px(ntrk), py(ntrk), ..."
```

It was stated that these super-tuples are designed to replace the mini-DST format. How this plan fits in with René's ZEBRA plans or what the syntax of the PAW command will be to deal with it is not known, but will be interesting to see.

Jamie Shiers (CERN) presented the plans for HEPDB, a database system being developed at CERN to satisfied what is seen as special needs of HEP experiments. It is based on the ZEBRA RZ package. Jamie justified using RZ by comparing it with Oracle. The positive side of Oracle is that performance is tolerable, integrity is good, lots of tools that work with it, and it works on all platforms. Against Oracle were that it didn't have all features needed by experiments, poor FORTRAN interface, was man power intensive, and a license had to be bought by all collaborating institutions. On the positive side for RZ, he mentioned that it was already used by other packages, it was free, comes in source form, and performance was good. I'm not sure I buy these arguments for using a homegrown system instead of a commercial one, but all the LEP detectors have. Of course, three of the four LEP detectors use ZEBRA for their data management system. So far, the best features of OPCAL (from OPAL) and DBL3 (from L3) have been put into the specifications. Both of these systems are already based on the RZ package. Plans include an interface to GEANT and PAW. I hope this doesn't mean that GEANT becomes dependent on HEPDB in order to operate.

The biggest surprise to me was the use of the AVS system to do single event display. C. Clavi from DEC gave a demonstration of the work done as part of the DEC/CERN joint studies program. Performance looked pretty good on a DECStation 5000. Some very interesting projects has come from this joint study program. SLAC is really missing out by not having an active joint study with DEC's UNIX team and that team is even based in Silicon Valley (I think)!

The World Wide Web (W3) project was presented by J.F. Groff (CERN) with live demonstration on a NeXT computer. Using the temporary Internet connection to the workshop site, document search was done to both the CERN on-line system (XFIND) and SLAC SPIRES systems. Terry Hung and I had done the interface to SPIRES just the month before. It is clear that the W3 people feel that the SPIRES interface is important to their project.

Mike Metcalf (CERN) presented results on using the NaG FORTRAN '90 compiler. Essentially all of the CERN program library has now been compiled with this compiler. Very little code needed any changing and where it did it was such things as having FORTRAN '66 type statements. Run time performance wasn't up to native FORTRAN '77 compilers, but never more than a factor two worst, which I felt isn't bad for a new compiler.

One of the best talks was the one by Robert Jones (CERN) on experience with interface builders for Motif. Actually, the talk was an analysis of commercial and non-commercial tools which seemed to be very well thought out. The only questionable note, in my opinion, was rejection of InterViews because its support was based only on "good will".

Amongst the other talks, I noted an increased awareness and use of software available from the Internet archive sites such as ISIS. Also an increase in number of projects programming to X-Windows. Both of these points also means an increase use of the C programming language.

HEPLIB Meetings

HEPLIB meetings were held in two afternoons of the L'Agelonde workshop in place of the Software Engineering parallel track. The first HEPLIB meeting was hosted by the SSCL in September 1991 and these meetings were meant to be the European counterpart. Most of the American key players of the HEPLIB initiative made the trip to L'Agelonde for this meeting.

The first session was in two parts. The first part had short presentations on views of HEPLIB from 7 speakers, while the second was a round table discussion amongst all participants. The views of what HEPLIB should be and how it would be maintained certainly differed widely. A common thread, however, was that HEPLIB should be more than the software maintained by the CERN Program Library staff.

Some of the key issues presented were...

- Code management in heterogenous environment. Everybody use CMZ?
- Which operating systems are considered supported and for each operating system, which release levels. What systems must be supported?
- Want contributions open to all, yet don't want to support everything.
- Should HEPLIB have a profession staff? who would pay? where located?
- How to distribute and announce. WWW? Usenet? anonymous ftp?
- What documentation is required? What form is the documentation? LaTeX? SGML?

The best summary of the issues and the various thoughts on approaches that could be taken is probably the proceedings of the HEPLIB meeting in Dallas[1].

A big topic in the round table discussion that followed the presentations was how to classify software. Should it be divided into say three categories depending on level of support? likelihood of being installed everywhere? perceived quality by reviewers? or what? A subgroup was assigned to make a proposal on these issues for the next day's meeting.

Harald Johnstad (SSCL) asked me to make comments. My comments were along the following lines...

- First, that I was holding back from commenting until I heard more European opinions, but up to that point, most of the comments in the meeting were coming from Americans.
- That I didn't think trying to classify software into categories was a worthwhile endeavor. It might lead to endless discussions and leave bad feelings if people felt their contributions should have gotten a "higher" rating.
- That I didn't see that a tightly controlled HEPLIB, such as CERNLIB is today, was a
 workable enterprise. All the major labs already have overloaded staffs and additional
 efforts to maintain HEPLIB could not be obtained.
- That it appeared from statements made during the workshop, that experimental groups
 frequently get source code directly from the authors and not through the distribution
 channels such as CERNLIB. This seems to be the case with JETSET for all the LEP detector groups, for example, and is also the case for EGS.
- That there are known sites that distribute good documentation simultaneous with the software and known sites that distribute software and the documentation comes two years later, and that sometimes the same site does both.
- Thus I concluded the model for HEPLIB should be the Internet tradition. Namely, a
 number of anonymous ftp archive sites, each maintaining software to their own (high)
 standards, and a mechanism of indexing what was available on what sites.

Unfortunately, most of the participants were not very well aware of the Internet tradition. I asked for a show of hands, for example, of how many people knew what the Free Software Foundation (FSF) was. Less than 1/3 knew. I asked how many people knew what Archie was; only a few knew (Archie is an automated index server of the 1000+ ftp archive sites on the internet).

The second day of the HEPLIB meetings started with summary talks from the subgroups that had been formed the previous day. Andrea Polounek (LANL) presented a classification scheme. She liken the lowest level of support category to be like the FSF's GNULIB, which I strongly objected to since the GNU software represents some of highest quality software available by anonymous ftp. Yet another indication that the HEP community is not very well aware of the Internet tradition, as she was merely confused with the "free" in the name.

A lot of time was spent in this second meeting discussing where in the UNIX file system the "standard" libraries would be located. The discussion was almost heated at times. It seems to me that this is a topic for the HEPIX group, not the HEPLIB group.

The conclusion of this HEPLIB meeting seems to be that two tracks should be investigated independently and then discussed at a future meeting. The first, proposed by Saul Youssef (SRI-FSU), is close to the Internet tradition, but with a centralized anonymous ftp server and volunteer "Editors" who would encourage submission of software. The second approach is closer to the CERNLIB model and will be investigated by Miguel Marquina (CERN). A tentative date for the next meeting of the steering committee was set to coincide with the SDC collaboration meeting in Japan in May.

Visit to LAL Orsay

I spent an otherwise idle day between the L'Agelonde and MC++ workshops at Orsay, since Paris was a transit city anyway. Christian Arnault demonstrated the OnX software for me. It is sort of like the NeXTstep Interface Builder for rapid prototyping a Graphical User Interface (GUI). It

was originally developed at Orsay for single event display but is being extended to be general purpose. There standard demonstration worked fine, but he got a bit fowled up with my favorite demonstration of the Interface Builder (a text field taking its value from a slider).

I also worked with Christian to port the Hippoplotamus package from SLAC to his DECStation. The source code was retrieved from SLAC via the Internet and I notice that Orsay's connection to the Internet has improved considerably since the last time I was there (1990). This was the first port to Ultrix and it went fairly smoothly except for 8 areas with the DEC C compiler was not ANSI compliant (these have not been corrected at SLAC). Christian was favorably impressed with the package and is planning to use it to build a tuple viewer application along the lines of the B-Factory software benchmark in order to show off the OnX package.

MC++ Workshop

This was the first workshop to discuss the MC++ project. Details of the meeting will be covered in its proceedings[2]. Besides those involved in object oriented programming (OOP), such as my self, the principal authors of well known existing event generators (B. Webber, F. Paige, and T. Sjöstrand) were all invited. Each one said they would come if the others did, which resulted in none of them coming. Nevertheless, a good body of expertise was present. The participants and their area of expertise is listed below

Dag Brück (Lund) OOP, C++ standards committee (not a physicist)

Toby Burnett (Washington) OOP, C++, Gismo (detector simulation).

Bob van Eijk (CERN) Event Generators, analysis

Myself (SLAC) OOP

Leif Lönnblad (DESY) OOP, C++, Andriana, JETSET

Anders Nilsson (Lund) OOP, C++, JETSET Mike Seymour (Cambridge) OOP, Herwig.

The workshop reviewed the status of the MC++ toolkit, C++ standards, and the detector simulation toolkit: Gismo. MC++ seems to be in pretty good shape of meeting its initial goals of doing simulation of e⁺e⁻ collisions using three different models of hadronization: Andriana, Herwig, and Lund. The hadronization is done by interfacing to the existing FORTRAN code. Also the entire JET-SET particle decay table has been incorporated. The interface with detector simulation was is question at the beginning of the workshop, but Toby Burnett made the statement that as a result of the workshop he sees how to do it without any changes to MC++.

The future for MC++ was also discussed. The key priority is to do hadronic collisions in order to demonstrate the toolkit's capability and flexibility. Also doing more of the calculations with OOP rather than incorporating FORTRAN code is needed. At the same time, insuring seamless integration with the detector simulators must be maintained.

Appendix A

Full Itinerary:

January 11 Leave Stanford

January 12 Arrive Marseille, transit to L'Agelonde with François Etienne

of CPPM, France.

January 13 - 18 L'Agelonde Workshop

January 18 Leave L'Agelonde, arrive Paris

January 19 Idle day

January 20 Visit LAL Orsay

January 21 Leave Paris, arrive Lund, Sweden

January 22- 24 MC++ Workshop

January 25 Leave Lund, arrive Stanford

Appendix B

List of Persons met during trip

L'Agelonde:

René Brun (CERN)

François Etienne (CPPM)

Fred James (CERN)
Marcel Kunze (Ruhr)
Mike Metcalf (CERN)
Jan Peters (DESY)

Carsten Peterson (Lund) Andrea Polounek (LANL) Saul Youssef (SRI-FSU)

LAL Orsay:

Christian Arnault

Christian Helft Michael Davie

Lund:

Leif Lönnblad (DESY)

Anders Nilsson (Lund) Bo Anderson (Lund) Bob van Eijk (CERN)

Mike Seymour (Cambridge)
Toby Burnett (U Washington)

Dag Brück (Lund Inst. Technology)

Carsten Peterson (Lund)

References

- [1] Proceeding of the HEPLIB Users Meeting. Dallas, September 1991.
- [2] Proceedings of the First Workshop on The MC++ Event Generator Toolkit, January 22-24, 1992, Lund, Sweden, (to be published as a Lund Theoretical Physics Dept. technical note).

Kunz, Poul F.

world wide web files for SLACUM interface

SLAC ARCHIVES COLL ADERTICS
SERIES | SUBSERIES | SUBSE

WorldWideWeb

Paul F. Kunz

This document is a copy of the files involved in the WWW interface to SLACVM.

1. Server machine startup (PROFILE EXEC on SPICELL 191).

```
/* SLAC new-user PROFILE EXEC */
 << some comments removed >>
 /* */
  Trace R /* Don't echo these commands to the console */
  /* Following things not done in batch */
  If ^ XFLAG(BATCH) then do
 QCONSOLE /* Determine and set up for terminal type */
 Pull . contype .
 If contype = 'TTY' then EXEC ASCII NOQTERM NOCLEAR
 Else if contype = 3270 then EXEC 3270 NOQTERM NOCLEAR RESET
 /* Only do news/mail if there's
 really a terminal there. */
 If contype ^= 'DISC' then do
 DROPBUF 0 /* Clear stack buffers before news & mail */
 End /* contype ^= 'DISC' */
 End /* processing for non-BATCH */
/* C compiler stuff */
'GIME C370'
/* SET UP TCP ACCESS */
/* "GIME TCPMNT 582" tyh */
"GIME TCPAPPL "
"GLOBAL TXTLIB IBMLIB CMSLIB EDCBASE COMMTXT VSPASCAL AMPLANG"
'QCONSOLE'
pull . cons .
if cons = 'DISC' then do
'EXEC RUNDAEMO'
end
```

Return

Replaces CEDW front proje if eurosing www on unixhub.

2. Root hypertext file: /usr/local/lib.shared/www/default.html

<TITLE>Welcome to the Universe of HyperText</TITLE>

<H2>Home</H2>Access to this information is provided as part of the <A NAME=0
HREF=http://info.cern.ch./hypertext/WWW/TheProject.html>WorldWideWeb
project. The WWW project does not take responsability for the accuracy
of information provided by others.

<H2>How to proceed</H2>References to other information are represented like this . Double-click on it to jump to related information.

<H2>General Information sourcesH2>Now choose an area in which
you would like to start browsing.The

system currently has access to three sources of information. With the indexes, you should use the keyword search option on your browser.

<DT>SLAC SPIRES

<DD>A search into SLAC SPIRES HEP Preprint Database. This is the same information avialable via the QSPIRES facility on BITNET.

<DT>CERN Information

<DD> A general keyword index of information made available

by the computer centre, including CERN, Cray and IBM help files,

"Writeups", and the Computer Newsletter (CNL). (This is the same data on CERNVM which is also available on CERNVM with the VM FIND command)

<DT>Yellow Pages
<DD> A keyword index to the CERN telephone book by function.

<DT>Internet News

<DD> You can access the internet news scheme (See information

for new users). News articles are distributed typically CERN-wide or worldwide, and have a finite lifetime. $^{\rm </DL>}$

Newsgroups which may be of general interest at CERN include $<\!\mathrm{UL}\!>$

CERN/ECP news

STING (Software Technology Interest Group)
news.

<H2>NeXT-related</H2>If you have a NeXT machine, see also the following topics: $\ensuremath{^{<\!\!}}\text{DL}>$

<DT>HELP

<DD> on this WorldWideWeb application

<DT>Installation at
CERN

<< Rest document deleted >>

3. Customizable exit to server code: FINDGATE C on SPICELL 192

```
Handle HTTP request for CERNVM FIND serverFINDGate.c
  **
         This code takes a document name and converts it into
 **
         a VM CMS command to produce the hypertext the caller requires.
 * *
         This involves, in general, calling an EXEC file which puts
         the data onto the "stack" The stack allows the data to be read from
 **
 * *
         stdin as though it came from the command device.
         The commands are written to return a value which is equal to the
 * *
 **
         number of lines put onto the stack.
 * *
 ** History
        29 May 91Separated from daemon program - TBL
 **
 **
        19 May 91Retrieve subroutine format used. -TBL
 */
 #define BUFFER_SIZE 4096/* Arbitrary size for efficiency */
 #include "HTUtils.h"
#include "tcp.h"/* The whole mess of include files */
#include "HTTCP.h"/* Some utilities for TCP */
extern int WWW_TraceFlag;/* Control diagnostic output */
extern FILE * LogFile;/* Log file output */
extern char HTClientHost[16];/* Client name to be output */
extern int HTWriteASCII(int soc, const char * s);/* In HTDaemon.c */
<< Some extraneous code removed >>
/*
       Handle one message
       ______
                      A file descriptor for input and output.
       SOC
```

```
**
 **
** On entry,
**
** On exit,
**
        returns
                       >0
                              Channel is still open.
**
                              End of file was found, please close file
                       0
* *
                       <0
                              Error found, please close file.
*/
/*
       Retrieve information
**
       ______
*/
#ifdef __STDC__
int HTRetrieve(const char * arg, const char * keys, int soc)
#else
int HTRetrieve(arg, keys, soc)
   char *arg;
   char *keys;
```

```
int soc;
   #endif
   #define COMMAND_SIZE255
   #define MAX_LINES 10000/* Maximum number of lines returned */
       char command[COMMAND_SIZE+1];
       char keywords[COMMAND_SIZE+1];
       char argument[COMMAND_SIZE+1];
      char buffer[BUFFER_SIZE];
      int status;
      char * filename;/* Pointer to filename or group list*/
      char system_command[COMMAND_SIZE+1];
      int lines; /* Number of lines returned by EXEC file */
                 /* File descriptor number */
      int isIndex = 0;/* Is the thing asked for an index? */
          Remove host and any punctuation. (Could use HTParse @)
      strcpy(argument, arg);
      filename = argument;
      if (argument[0]=='/') {
         if (argument[1]=='/') {
             filename = strchr(argument+2, '/');/* Skip //host/ */
             if (!filename) filename=argument+strlen(argument);
         } else {
             filename = argument+1;/* Assume root: skip slash */
         }
     }
     if (!*filename) {
         HTWriteASCII(soc, "<P>Error: No document ID provided.<P>\n");
         return 0;
     }
     if (keys) strcpy(keywords, keys);
     else keywords[0] = 0; /* As if just "?" given (historical) */
        Formats supported by FIND are:
        /FIND
                                       Help for find general index
        /FIND/
                                       (same)
* *
        /FIND/?
                                       (same)
* *
        /FIND/group.disk.ft.fnGet a document from a disk- NOT INDEX
* *
        /FIND/grouplist?Help for group index
* *
        /FIND/grouplist?keylistSearch a set of disks for keywords
**
                                      where grouplist = group+group+group.. or
void
**
                                      keylist = key+key+key... (not void)
*/
   if((
               (0==strncmp(filename, "FIND",4))
               (0==strncmp(filename, *find*,4))
       ) && (
```

```
(filename[4]==0)
             || (filename[4]=='/')
             || (filename[4]=='?')
         )) {
        filename=filename+4;
        if (*filename=='/') filename++;/* Skip first slash */
        if (keys || !*filename) {/* Index access */
            char *p;
            while((p=strchr(filename,'+'))!=0) *p=' ';/* Remove +s */
            while((p=strchr(keywords,'+'))!=0) *p=' ';/* Remove +s */
            if (!*keywords) { /* If no keywords
                HTWriteASCII(soc, "<IsIndex><TITLE>");
                HTWriteASCII(soc, filename);
               HTWriteASCII(soc, * keyword index</TITLE>\n*);
                if (*filename) {
                   HTWriteASCII(soc, "This index covers groups: `");
                   HTWriteASCII(soc, filename);
                   HTWriteASCII(soc, "'");
               } else {
                   HTWriteASCII (soc,
"This is the general CERN Computer Center public document index");
               HTWriteASCII(soc,
". Your words will be matched against author-supplied keywords.\n");
               HTWriteASCII(soc,
"<P>Supply keywords to search for information.<P>\n");
               return 0;
           sprintf(buffer, "<IsIndex>\n<TITLE>%s in %s</TITLE>\n",
              keywords, *filename ? filename : "general index" );
           HTWriteASCII(soc, buffer);
          sprintf(system_command, "EXEC FSEARCH %s %s",
              HTClientHost, keywords);
          if (*filename) {
              strcat(system_command, " ( ");
              strcat(system_command, filename);
          }
      } else { /* no keys */
          sprintf(system_command, "EXEC FGET %s %s",
              HTClientHost, filename);
      }
  } /* if FIND */
     Formats supported by NEWS are:
     /NEWS
                                    General news
     /NEWS/grouplist
                            News for given groups
     /NEWS/grouplist?All news for all given groups
```

```
/NEWS/grouplist?keylistSearch news for keywords
  **
  * *
                                        where grouplist = group+group+group.. or
  void
                                        keylist = key+key+key... (can be void)
  */
      else if((
 << code for handling NEWS deleted. >>
         Execute system command and get the results
 */
     lines = system(system_command);/* Number of stacked lines */
     if (TRACE) printf("Command `%s' returned %i lines.\n",
                system_command, lines);
     if (lines<=0) {
        HTWriteASCII(soc,
         "\nSorry, the FIND server could not execute\n `");
        HTWriteASCII(soc, system_command);
        HTWriteASCII(soc, "'\n\n");
        return 0;
     }
     /* Copy the file across: */
    for(;lines; lines--){/* Speed necessary here */
        char *p;
        if (!fgets(buffer, BUFFER_SIZE, stdin))
            sprintf(buffer,
 "*** End of file with %d lines left after command\n%s\n - mail BERND@CERNVM",
            lines, system_command);
       for(p=buffer; *p; p++) *p = TOASCII(*p);
       write(soc, buffer, p-buffer);
    return 0;
} /* HTRetrieve() */
```

4. File fetching: FGET EXEC on SPICELL 192

```
/* */
Parse arg ip_adr file '(' options
Say 'FGET received:' ip_adr file '(' options
Trace R
Parse var file fn '.' ft .

If ft = '' then do /* attempt to initiate keyword search */
    'EXECIO * DISKR' fn 'INDEX ( FINI'
    Exit Queued()
    End /* do */

If ft /= 'html' then do /* attempt to fetch file */
    Queue '<PLAINTEXT>'
    End /* do */
'EXECIO * DISKR' fn ft '( FINI'
Exit Queued()
```

5. File returned from root file: SPIRES HMTL on SPICELL 192

```
<TITLE>SLAC SPIRES </TITLE>
<NEXTID 2>
<H1>SLACVM SPIRES HEP Preprint Database</H1>
<DL>
<DT><A NAME=0 HREF=http://slacvm.slac.stanford.edu./FIND/spires>Search</A>
<DD>Perform search using standard SPIRES terms.
<DT><A NAME=1 HREF=http://slacvm.slac.stanford.edu./FIND/spihelp>Help</A>
<DD>Get help for SPIRES
</DL>
```

6. File returned that starts search: SPIRES INDEX on SPICELL 192

```
<IsIndex>
<TITLE>SLAC SPIRES</TITLE>
<PLAINTEXT>
SLAC SPIRES HEP Preprint database search
Use standard SPIRES search terms such as...
find author Perl, M
find title tau and date 1980
```

7. Processing a search: FSEARCH EXEC on SPICELL 192

```
/* */
Trace R
Arg . comm '(' options
Queue '<PLAINTEXT>'
'EXEC QSPIRES' comm '( STACK'
'EXEC QSPIRES OUTPUT ( TYPE BRIEF STACK'
Exit Queued()
```

Course persons

SLAC ARCHIVES COLL CO- 072

SERIES 1 SUBSERIES 5

BOX FOLDER 31

Date: Thu, 12 Dec 91 18:22:13 PST

From: pfkeb (To: timbl@nxoc01.cern.ch (Tim Berners-Lee))

To: timbl@nxoc01.cern.ch (Tim Berners-Lee)

Subject: Re: WWW to SPIRES on SLACVM

We have a usable version running on VM. All that is need is for the system's people to add the VMid of our service machine to the list of autologged VMs. We'll keep this machine running manually in the meantime, but adding it to the list should happen tomorrow (Friday).

Now, all you need is the hook to put into a html file. Here is the one we are using...

<DT>SLAC
SPIRES

<DD>A search into SLAC SPIRES HEP Preprint Database. This is the same information
avialable via the QSPIRES facility on BITNET.

Give it a try and see if it works for you.

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: pfkeb@KAON.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 a 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 on 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."

```
Received: from SLACVM by SLACVM.SLAC.STANFORD.EDU (Mailer R2.08 R208004) with
  BSMTP id 7464; Thu, 30 Jan 97 09:56:56 PST
Received: from serv05.slac.stanford.edu by SLACVM.SLAC.STANFORD.EDU
    (IBM VM SMTP V2R1) with TCP; Thu, 30 Jan 97 09:56:55 PST
Received: from mailbox.SLAC.Stanford.EDU (root@MAILBOX.SLAC.Stanford.EDU)
 by SERV05.SLAC.STANFORD.EDU (PMDF V5.1-4 #16063)
 with ESMTP id <011ETJ4KCDYS002FIA@SERV05.SLAC.STANFORD.EDU> for
 jmdeken@SLACVM.SLAC.Stanford.EDU; Thu, 30 Jan 1997 09:58:13 PST
Received: from SERV04.SLAC.STANFORD.EDU
 (SERV04.SLAC.Stanford.EDU [134.79.16.134]) by mailbox.SLAC.Stanford.EDU
 (8.8.2/8.6.11) with SMTP id JAA25262 for (jmdeken@MAILBOX.SLAC.Stanford.EDU);
 Thu, 30 Jan 1997 09:58:10 -0800 (PST)
Received: from kaon.SLAC.Stanford.EDU ("port 2697"@KAON.SLAC.Stanford.EDU)
 by SERV04.SLAC.STANFORD.EDU (PMDF V5.1-4 #16063)
 with SMTP id <011ETJ4HT4T0002EG9@SERV04.SLAC.STANFORD.EDU> for
 jmdeken@MAILBOX.SLAC.Stanford.EDU; Thu, 30 Jan 1997 09:58:10 -0800 (PST)
Received: by kaon.SLAC.Stanford.EDU (NX5.67d/NX3.0S) id AA15680; Thu,
 30 Jan 1997 09:58:06 -0800
Received: by NeXT.Mailer (1.100.RR)
Received: by NeXT Mailer (1.100.RR)
Date: Thu, 30 Jan 1997 09:58:06 -0800
From: "Paul F. Kunz" (Paul Kunz@SLAC.Stanford.EDU)
Subject: WWW to SPIRES on SLACVM
To: jmdeken@MAILBOX.SLAC.Stanford.EDU
Reply-to: Paul_Kunz@SLAC.Stanford.EDU
Message-id: <9701301758.AA15680@kaon.SLAC.Stanford.EDU>
X-Envelope-to: jmdeken@SLACVM.SLAC.Stanford.EDU
```

I was cleaning up my mail boxes when I cam across your request for early Web history at SLAC. Here is the original (famous?) message informing the CERN that our web server was running...

Begin forwarded message:

Date: Thu, 12 Dec 91 18:22:13 PST
From: pfkeb (To: timbl@nxoc01.cern.ch (Tim Berners-Lee))
To: timbl@nxoc01.cern.ch (Tim Berners-Lee)
Subject: Re: WWW to SPIRES on SLACVM

We have a usable version running on VM. All that is need is for the system's people to add the VMid of our service machine to the list of autologged VMs. We'll keep this machine running manually in the meantime, but adding it to the should happen tomorrow (Fridav).

Now, all you need is the hook to put into a html file. Here is the one we using...

Give it a try and see if it works for you.

```
Received: from SLACVM by SLACVM.SLAC.STANFORD.EDU (Mailer R2.08 R208004) with
   BSMTP id 7930; Wed, 20 Nov 96 16:02:12 PST
  Received: from serv05.slac.stanford.edu by SLACVM.SLAC.STANFORD.EDU
     (IBM VM SMTP V2R1) with TCP; Wed, 20 Nov 96 16:02:12 PST
  Received: from MAILBOX.SLAC.Stanford.EDU (root@MAILBOX.SLAC.Stanford.EDU) by SERV05.SLAC.STANFORD.EDU (PMDF V5.0-6 #10979)
  id <01IC2P64ZOGU00006I@SERV05.SLAC.STANFORD.EDU> for
   jmdeken@SLACVM.SLAC.Stanford.EDU; Wed, 20 Nov 1996 16:02:52 -0800 (PST)
  Received: from vesta05.SLAC.Stanford.EDU
   (VESTA05.SLAC.Stanford.EDU [134.79.17.15]) by mailbox.SLAC.Stanford.EDU
  (8.8.2/8.6.11) with SMTP id QAA09100 for <jmdeken@slacvm.SLAC.Stanford.EDU>;
  Wed, 20 Nov 1996 16:02:48 -0800 (PST)
 Received: by vesta05.SLAC.Stanford.EDU (AIX 3.2/UCB 5.64/SLAC 961025)
  id AA25773; Wed, 20 Nov 1996 16:02:46 -0800
 Date: Wed, 20 Nov 1996 16:02:46 -0800 (PST)
 From: jmdeken@MAILBOX.SLAC.Stanford.EDU
 Subject: Re: History of the SLAC Web site (fwd)
 To: jmdeken@SLACVM.SLAC.Stanford.EDU
 Message-id: <9611210002.AA25773@vesta05.SLAC.Stanford.EDU>
 X-Envelope-to: jmdeken@SLACVM.SLAC.Stanford.EDU
 MIME-version: 1.0
 X-Mailer: ELM [version 2.4 PL25]
 Content-type: text/plain; charset=US-ASCII
 Content-transfer-encoding: 7bit
Forwarded message:
> From Paul_Kunz@SLAC.Stanford.EDU Wed Nov 20 13:23:50 1996
> Date: Wed, 20 Nov 1996 13:23:19 -0800
> From: "Paul F. Kunz" <Paul_Kunz@SLAC.Stanford.EDU>
> Subject: Re: History of the SLAC Web site
> To: jmdeken@MAILBOX.SLAC.Stanford.EDU
> Reply-to: Paul_Kunz@SLAC.Stanford.EDU
> Message-id: <9611202123.AA17910@kaon.SLAC.Stanford.EDU>
> X-Envelope-to: jmdeken@MAILBOX.SLAC.Stanford.EDU
> Content-transfer-encoding: 7BIT
     I installed the SLAC Web server on VM on Dec 12, 1991.
  interviewed yesterday by Mark Webber who is writing a book on the Web
                                                               I was just
> history.
     I'm on vacation starting Thursday, followed by a trip to CERN.
> back at SLAC on December 9th.
                                                                        I'll be
```

>

Date: Tue, 31 Mar 1998 11:19:23 -0800 (PST) From: Jean Deken <jmdeken@slac.stanford.edu> To: "Paul F. Kunz" < Paul Kunz@SLAC.Stanford.EDU>

Subject: Re: History of $\overline{\mathtt{WWW}}$ at SLAC

Please see my notes below. Thanks for taking the time to review this. Jean

On Mon, 30 Mar 1998, Paul F. Kunz wrote:

> Date: Mon, 30 Mar 1998 16:34:48 -0800 > From: "Paul F. Kunz" < Paul_Kunz@SLAC.Stanford.EDU> > To: Jean Deken <jmdeken@SL\(\overline{A}\)C.Stanford.EDU> > Subject: Re: History of WWW at SLAC On your early history of the Web at SLAC...

> - in footnote [7] you state SLAC's first web server came up in September of > 1991 which disagrees with the text that references the foot note. > is correct in that it was December 12th, 1991 that the server was available. > I believe I sent you a copy of the e-mail sent to Tim on that.

Yes. I've corrected the footnote. Actually, I've eliminated the reference to a discrepancy, since W3 has corrected their online history (based on your e-mail to Tim, no doubt).

> - when the Web server came up in December, it had an interface to SLAC SPIRES > database. So I'm not sure what George Cane did shortly aftewards as stated The URL reference in footnote 8 doesn't work, so I can't get > in the text. > more info.

The URL footnote in reference 8 turns out to be a bogus URL, or rather, a valid URL that has nothing to do with the paper I'm citing. I've cleaned up the citation, and am sending you a paper copy of the presentation to which note 8 refers. The presentation has not been published in either hard copy or on the Web.

> - The time between September 1991 when I brought a Web browser to SLAC and > souce code for the server and December when I server came up is very long. > The explainatin is that Terry Hung started the project of bring up a server > but then stopped working on it. He did not know the SLACVM system very well > so dropped the project and nobody noticed for a long time. Finally in > December, I put myself to finishing the server installation since I knew how > to handle VM and the interface to SLAC Spires which Terry did not.

Thanks for this info. I have changed both the text of the paper and the text of footnote 7 to more accurately reflect the facts you describe. Please let me know if the re-writes are ok.

Jean Marie Deken, Archivist Stanford Linear Accelerator Tel: 650.926.3091 Fax: 650.926.4905 PO Box 4394 MS 82 Stanford CA 94309

e-mail:jmdeken@slac.stanford.edu

(NOTE: Area Code has changed to 650)

"Nothing is really work unless you would rather be doing something else."

James Barrie

Date: Mon, 30 Mar 1998 16:34:48 -0800

From: "Paul F. Kunz" < Paul_Kunz@SLAC.Stanford.EDU>

To: Jean Deken <jmdeken@SLAC.Stanford.EDU>

Subject: Re: History of WWW at SLAC

On your early history of the Web at SLAC...

- in footnote [7] you state SLAC's first web server came up in September of 1991 which disagrees with the text that references the foot note. The text is correct in that it was December 12th, 1991 that the server was available. I believe I sent you a copy of the e-mail sent to Tim on that.

- when the Web server came up in December, it had an interface to SLAC SPIRES database. So I'm not sure what George Cane did shortly aftewards as stated in the text. The URL reference in footnote 8 doesn't work, so I can't get

 $\sqrt{\, -\, }$ The time between September 1991 when I brought a Web browser to SLAC and souce code for the server and December when I server came up is very long. The explainatin is that Terry Hung started the project of bring up a server but then stopped working on it. He did not know the SLACVM system very well so dropped the project and nobody noticed for a long time. Finally in December, I put myself to finishing the server installation since I knew how to handle VM and the interface to SLAC Spires which Terry did not.