IT Historical Narratives

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The Challenge

To prove what happened in the past, one needs persistent URIs. This is NOT the case on the CERN web today

2022-05-11 History of Distributed Computing

Speakers: B.Segal, M.Dimou, N.Borenstein, L.Robertson, F.Hemmer with participation and comments by Sir Tim Berners-Lee and Vint Cerf. The greater part of historical documents is in the material attached to the events. The Dimou-Borenstein events contains more than 50 documents. Entry point is: https://indico.cern.ch/event/1052073/

HEPiX history

This note contains only material from the 1999-2003 period when M.Dimou was the CERN representative at HEPiX. The website http://cern.ch/hepix/ is in the /afs/cern.ch/user/d/dimou/www/hepix directory.

2023-04-04 Francois Fluckiger

Embarrassing for CERN search results on the Public Domain phrasing (https://duckduckgo.com/?t=ffab&q=cern+festivities+web++public+domain&atb=v165-1&ia=web)

https://home.web.cern.ch/news/press-release/cern/cern-celebrates-20-years-free-open-web

CERN *Birth Web* article (https://www.home.cern/science/computing/birth-web) still uses term *Public Domain*.

CERN 1993 Annual Report (https://cds.cern.ch/record/1540825/files/1993_Ev2_p89.pdf) **No** mention of the *Public Doman* memo.

Input by F.Fluckiger:

> Though the release presents IPR relinquish as necessary, Tim, (aware of the appropriation and attribution consequences) is more careful. He does not refer to Public Domain and uses a more general wording (“available on a royalty free basis, and without additional impediments”)

TimBL's quote in the *wayback machine*:

> "CERN's decision to make the Web foundations and protocols available on a royalty free basis, and without additional impediments, was crucial to the Web's existence. Without this commitment, the enormous individual and corporate investment in Web technology simply would never have happened, and we wouldn't have the Web today."

https://web.archive.org/web/20060325144320/http://tenyears-www.web.cern.ch/tenyears-www/

and https://web.archive.org/details/http://tenyears-www.web.cern.ch/tenyears-www/

2023-04-05 Ben Segal

1. About 10 papers with index page to be scanned and uploaded to CDS.
   About TCP/IP history at CERN. Mostly the 1980ies.

2. The STELLA project (started 1978) papers are already in CDS. The Assembler programme for 8-bit Motorola (1982) was given today to Salomé for scanning.
   Also memoranda by Division leader etc to be also added.
   Jean-Yves said the code will be scanned with OCR (Optical Character Recognition).
   Salomé said that, for this paper format, each page has to be done separately.
   The programme code can become a file of the same CDS record, or a new collection, as Salomé prefers.
   Part of the explanatory text can be these notes:
   Several institutes participated in the STELLA project, each having their own computer.
   Ben's programme was handling a box, adapting to each computer.
   Computers were: IBM at DESY, PDP-11 in Pisa, Norsk Data at CERN, etc. Other participants were Frascati (temporarily), RAL from the UK, from Ireland was Dublin and from Austria the Graz polytechnics.
   Access to the satelite was done in fixed time-slots using TDMA (Time Division Multiple Access). The support for microprocessors at CERN was quite good in the 1980ies.
   Also because of CAMAC (Computer-Aided Measurement And Control) pieces for the experiments' online computing.
   DD (Data and Documents) Division started microprocessor software support in 1978 and was appreciated by the experiments. Cross-compilers and cross-assembler code

was very common across manufacturers. Intel was banned from CERN at the time. The Norsk Data contract was due to the fact that Norway had recently joined CERN and had this good computer.

3. Not all of the TimBL papers, with index page, scanned last August are in CDS. One of them is a memo about the Delphi RPCs annotated by a person who didn't sign. I said this may be David Williams. Looking for his hand-writing I got to https://scientific-info.cern/archives/CERN_archive/guide/IT/isadow but can't see any individual paper. Why?

4. About the CISCO stuff: Because it is company info, we can't put it in CDS but we can put it in the IT archive. Maybe later for the museum
which is now interrupted together with the CISCO box that Ben gave to Melissa in the past. There are emails in there for example from Daniel Karrenberg (USENET) https://en.wikipedia.org/wiki/Daniel_Karrenberg, which show how the community bypassed the PTTs and the mandatory X.25 infrastructure to establish IP communication
over it, using the CISCO TCP/IP over X.25 capability, as indicated by Ben in his paper https://cds.cern.ch/record/2855572/files/A%20Short%20History%20of%20Internet%20Pr

5. Ben will add content to the STELLA photos.

All paper versions will remain with the CERN archives.

Please let me know if you disagree with any of the above.

You can see all of this history in https://indico.cern.ch/event/1052073/ and the lectures '2' and '3' of the same series.
@Jens, about your question: who took the decision to put the Web in the public domain:
a. I shall email F.Fluckiger now.
b. I shall also ask TimBL. He was still here in 1993.
c. Please look at the material in folder "Web" from my lecture https://indico.cern.ch/event/1052076/ - Examples:
- https://ref.web.cern.ch/ref/CERN/CNL/2001/001/www-history/ says nothing about the "who" AND is on a server that might disappear a.s.a.p. (hosted on Afs), so maybe take this CNN article and put it in CDS?
- https://www.netvalley.com/archives/mirrors/robert_cailliau_speech.htm says nothing about the "who", only that the LHC will leave no resources for Web dev. effort.
- https://cds.cern.ch/record/1952512/files/34-37.pdf (page 37) is the 1992 Annual Report, OK but nothing seems to show that something is preparing such a decision.
- https://cds.cern.ch/record/1540825/files/1993_Ev2_p89.pdf the 1993 Annual Report doesn't mention the Hoogland-Weber memo (page 93)

2023-03-17 Sverre Jarp

Papers we discussed for their historical importance

Trends in computing in HEP by Documents and Data (DD) Division leader Paolo Zanella https://cds.cern.ch/record/161215?ln=en

Single user systems by Ian Willers https://cds.cern.ch/record/161211?ln=en

GEANT4 paper https://cds.cern.ch/record/376433?ln=en

Discussion on CERN computer manufacturers' choice and Operating Systems

For LEP start-up autumn 1989, experiments required VMS.
For central computing we relied on the IBM collaboration that had started in 1976.
D.Williams took over 1989 as DD division leader, purchased a big IBM machine with 6 CPUs.
This computer required a “Big Bang” solution (HW AND SW changed simultaneously).
Mainframes were the standard. [Even the L3 collaboration bought one]. The biggest machines could provide VM/XA (extended architecture) making 32-bit computing the norm. Expected to suffice for the requirements of the address space.

There was some animosity between VM and VMS users. IBM tape store and IBM robot solved the problem. The choice was obvious.
DECnet was used across labs. VAX/VMS had to be kept for this reason.
APL, PL1, REXX were IBM programming languages.

At the time research and academia were producing software solutions, e.g. the Fortran Compiler was written by Waterloo University, Ontario, Canada.

We bought also n IBM compatible Fujitsu-Siemens mainframe under pressure by Germany to buy a European computer.

CDC 7600 (Control Data Corporation) operated here for 12 years. 1972-1984. Batch only. Fortran with Geant3.

Sverre was responsible in 1993 for performance optimisation of RISC workstations for the SHIFT project.

With his CHEP 1995 presentation, he demonstrated that PCs could do better that RISC. At the time price/performance was best for HP/PCs with Windows (which supported 2 processors) rather than Linux (only 1 processor).
Sverre defended the Windows' solution, until Linux came along with support for 2 processors and better performance. The Linux choice then became obvious.

2023-03-15 Juergen Knobloch

https://arxiv.org/ftp/arxiv/papers/1302/1302.2974.pdf et
https://www.erpanet.org/events/2003/lisbon/LisbonReportFinal.pdf now in CDS (records 1516770 and 2853187).
Prompted Juergen 3 times to enter keywords.

Here is a brief summary of the 2023-0315 meeting by Maria Dimou, emailed to Juergen:

1. Maria asked Salome Rohr, the new head of the CERN Library, whether one can access the Library Catalogue with a Lightweight account.
   Juergen needs Library access in your Editor's role for the “IEEE Transactions on Nuclear Science”.
   This will decide whether you extend your "Contributing Retiree" status or not beyond June 2023.
   Also the amount of work required for the points that follow.
   Please remember that my role as "Activity Manager" ends by then.

2. We agreed that you do an 'ssh juergen@lxplus.cern.ch', where your home directory is the Afs one. Please identify documents and data worth preserving.
   Check whether they are already in cds.cern.ch or attached to indico.cern.ch events. If not, please email Jean-Yves.Le.Meur@cern.ch (mailto:Jean-Yves.Le.Meur@cern.ch),

copy to me.
A discussion on how to enter the Metadata will follow. They are of vital importance to retrieve documents and data from storage.

3. If you have pages on the old agenda.cern.ch system, URIs like http://agenda.cern.ch/fullAgenda.php?ida=a04777 break.
Still, you CAN see the page, via a small URI edit: keep the number, change the first part to: http://indico.cern.ch/event/a04777
and it will work! Please send Jean-Yves and me such Web pages worth keeping.

4. For the Historical Narratives you have several Computing papers from the LEP aleph experiment but many pages appear now not found under https://aleph.web.cern.ch/aleph/aleph/Public.html

   4.a. Luckily, the Julia reconstruction programme chapter in the ALEPH book can be found around page 119 in https://cds.cern.ch/record/897514/files/cer-002567958.pdf?version=2 .

   4.b. Other important historical info is in the Erice talk https://arxiv.org/ftp/arxiv/papers/1302/1302.2974.pdf (Maria suggested this gets uploaded to CDS)

   4.c. Realising early the value of Data preservation, you gave this talk on 2004 for experiment data https://www.erpanet.org/events/2003/lisbon/LisbonReportFinal.pdf (gives security warning but it was OK to proceed). (Maria suggested this gets uploaded to CDS)

   4.d. You are interested to retrieve archived IBM VM data. Maria emailed Frederic Hemmer and Jean-Yves asking if such data still exists.

Cray by M.Marquina

when I mentioned the CRAY yesterday it was not just casual. Let me share some personal background for another slant to the "event", so you may weight in its relevance.

When I came in 1986 I joined UA1, which was fully running sim and analysis on CDC and IBM's MVS. My main contributions focused into automating the batch processing chain, scripting the logic under something called "Wylbur", never mind that now. CERNVM was making its way but remained essentially offering an interactive counterpart to MVS. I was among those developing the UA1 interactive interfaces to send batch jobs to MVS from CERNVM. Physics was not on Unix... yet.

The arrival of the Cray in 1988 meant taking research both into the Supercomputers' League and into Unix through Cray's variant (UNICOS). DD, the IT of the time, invited experiments to evaluate and exploit it; don't know who else accepted but UA1 took the challenge while the competitor UA2 declined (what I heard, to be verified).

I was offered to join the software porting team, and again I undertook the development of the batch submission scripting and participated in the evaluation of Cray's code compilers. Not a banal task because all the software had been developed and thoroughly tested only on 32-bit IBMs (cannot tell how far was the 60-bit CDC 7600 used the Physics community for that matter), the Cray X-MP was the first 64-bit one.

When I applied and was granted a position in DD as of July 1988, UA1 was in the middle of this process and we negotiated a six-month transition to allow me to complete this task while already in the department.

Long story short and in my view, this year would be the 35 anniversary of the first major Physics experiment exploiting a Unix-like (mainframe) facility provided by IT.

All this with the caveats of not being at the IT side at the beginning of 1988, to be fact-checked by those IT retirees who were; I recall for instance interacting with Harry Renshall and Judy Richards as the user-support side of it. And Eric McIntosh the one behind the mainframe "fabric", could not say if in GL role (I think he was) but certainly instrumental.

Voila, it has been fun to start the morning by dumping these memories ...