

www.nikhef.nl

How Nikhef got involved in the World Wide Web

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Introduction

The history of the World Wide Web (WWW) is well known. Tim Berners-Lee formulated his proposal in 1989, in 1991 the web server at CERN became operational and the line mode browser was released for public use. The first years WWW did not become very popular due to the availability of systems like gopher,archie and waise, which had a graphical user interface (GUI). In 1993 the first GUI's for WWW, Viola and X-Mosaic, became available and from that time the use of WWW grew spectacularly.

Here I report my personal view on how Nikhef got involved in the WWW project and became one of the first websites in the world.

The early days

In 1991 I worked in the computer department of Nikhef where I was responsible for user support and for the installation of the CERN software (written in FORTRAN and machine code) on Sun, HP and SGI, all running some version of Unix. In September that year there were two workshops in the USA which were useful for my daily work: a workshop on the CERN program libraries at (the now defunct) Superconducting Super Collider (SSC) near Dallas and the first workshop on the use of Unix in High Energy Physics, called Hepix, at Fermilab (FNAL) near Chicago. In both workshops Judy Richards of CERN gave a presentation on WWW.

When in November 1991 the availability of a web browser was announced, I remembered the talks at SSC and FNAL and decided to install the browser on our central computer, a Sun 4/690. That failed miserably and this could have been the end of my involvement with WWW but fortunately I had access to an IBM RS/6000 running AIX and on that system the installation succeeded. I then looked into the source code of the browser to find the cause of the failure on the Sun. It turned out that the change of a number 80 into 79 made the browser work on Sun as well. This 80 by the way had nothing to do with the port number which is now used by the web server but with the length of the line (remember: a punched card had 80 columns). My first e-mail to Tim Berners-Lee was about this bug.

Playing with the browser convinced me of the usefulness of WWW. For my work I had to log in on several CERN computers running different operating systems (IBM: VM/CMS, VAX:VMS) using different file systems. Since the information about the location of a file was now conveniently stored in the URL of the file the typing of a number in the line mode browser was enough.

The first customers of this browser were the secretaries of Nikhef, they were now able to find the phone numbers of people at CERN without the help of physicists with an account on the CERN IBM. Even more

enthusiastic was Karel Gaemers, then scientific director of NIKHEF-H, because access to the SPIRES preprint database via WWW was much faster and easier than with the SPIRES user interface.

The next logical step was the installation of a web server. With the help of the network gurus at Nikhef on February 1992 a web server was running on nic.nikhef.nl (nic: network information center). One of the first applications was the Nikhef telephone directory which could be searched using the isindex option. A more generic application was the world wide square root server which demonstrated the flexibility of what are now called CGI scripts. These applications were simple but they helped the CERN WWW team to overcome the skepticism at CERN.

Early 1993 the web server had to be moved from nic.nikhef.nl to nikhefh.nikhef.nl. This meant the change of a lot of URL's. I therefore proposed our system manager to give nikhefh.nikhef.nl the alias www.nikhef.nl to make our URL's immune for future moves of the web server.

Propaganda fide

In 1993 I preached the WWW gospel at the Network Services Conference at Pisa and at Interop 1993 in Paris. People still disliked WWW because it lacked a graphical user interface. This was not quite true since WWW has been developed on a NeXT computer but this system was not widely used. I therefore had to stress the beauty and the simplicity of the concept, based on one protocol HTTP and one markup language HTML and I had to demonstrate how easy it was to make scripts to be run on a web server. With the advent of X-Mosaic and Viola my mission became obsolete.

The rest is history: nobody can now imagine a world without WWW.

Lessons learned

WWW could become a success due to the simplicity of the concept which was implemented by a small team not hindered by managers. The source code was public so everybody interested in the project could contribute.

When choosing a program one should look more closely to the concepts and the design, less to the look and feel. WWW was so general that it supported the gopher and wais protocol as well.

Output of the line mode browser in 1993

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                                WWW - World Wide Web at NIKHEF

                                NIKHEF INFORMATION

Help [1]      About this program, and the World-Wide Web
NIKHEF [2]    NIKHEF information
CERN [3]     CERN Information, ftp access to file server asis01.cern.ch [4]
HEP [5]     High Energy Physics
WWW [6]     The home page of WWW on info.cern.ch
NETFIND [7]  World Wide User Lookup of email addresses

[End]

1-7, Quit, or Help: 2
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                                NIKHEF Information

                                NIKHEF INFORMATION

Local information  Address [1], How to get at NIKHEF [2]
NIKHEF-H preprints [3]
                                list [4]
PHONE [5]       Telephone directory
CALENDAR [6]    Important dates, seminars [7]
COMPUTING [8]   Computing at NIKHEF-H
NEWS [9]       NIKHEF-H News
Dutch Scientific [10] RIPE NCC [11], CWI [12]
SARA [13]      The Amsterdam Academic Computer Centre
TEST [14]     For testing purposes
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NIKHEF Computing

COMPUTING AT NIKHEF

People [1] Computer group at NIKHEF-H
Machines [2] Machines at NIKHEF-H
HELP [3] The HELP facility of the central server (SUN 4/690) at NIKHEF-H
CERNLIB [4] CERN program libraries at NIKHEF-H
WWW at NIKHEF-H How to hook into WWW [5]

[End]

Test of remote execution of commands

TEST

Welcome at the WWW server on www.nikhef.nl.

This to test the execution of commands on our server

Date [1] Print local time at NIKHEF
uptime [2] uptime of www.nikhef.nl
ruptime [3] uptime of NIKHEF-H machines
users [4] users of www.nikhef.nl
rwho [5] users of any [nikhef-h](http://www.nikhef.nl) machine
Clients [6] users of WWW server
SQRT [7] Compute sqrt

1-7, Back, Quit, or Help: q