



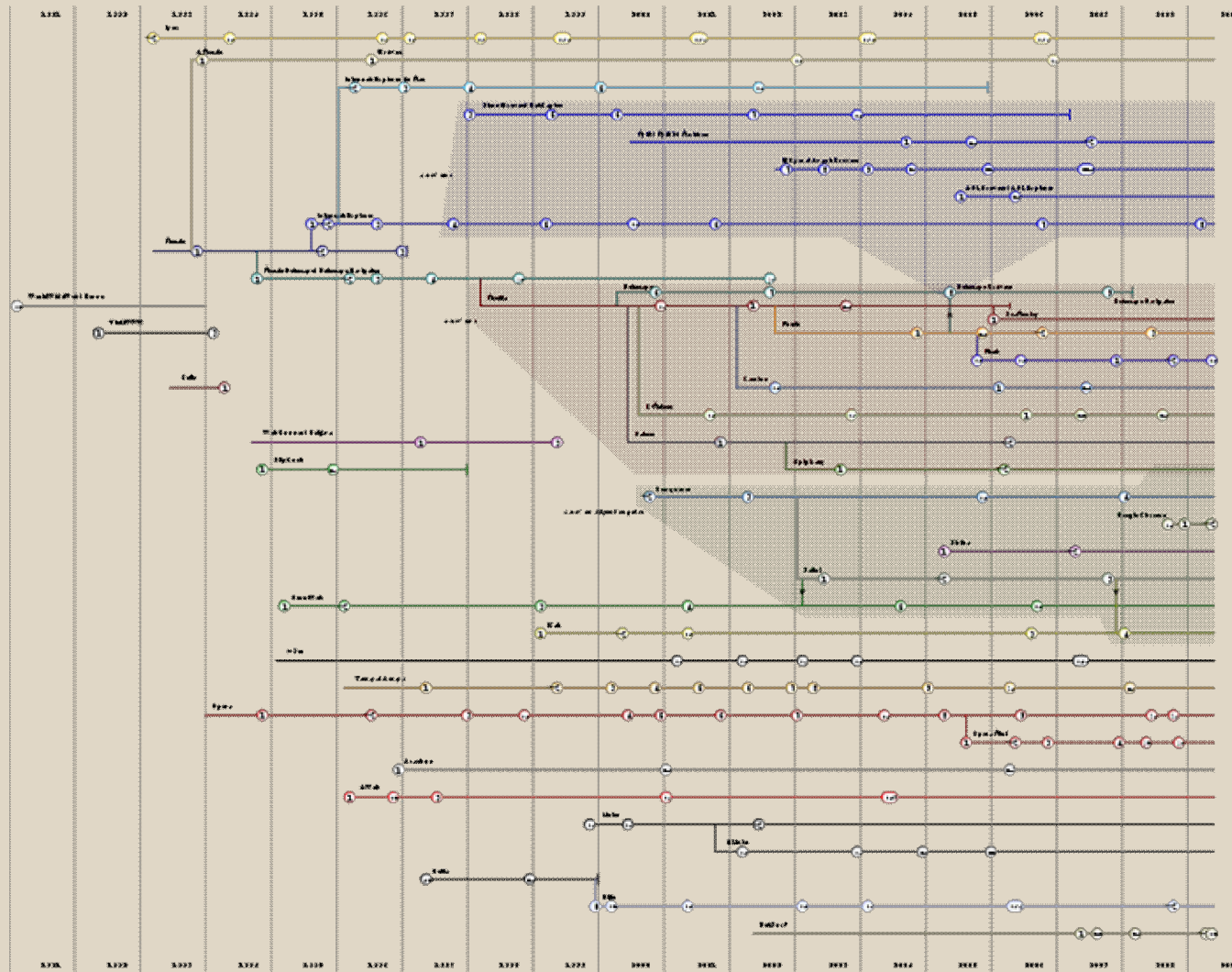
Emulating access to the web 1.0

Save the browser!

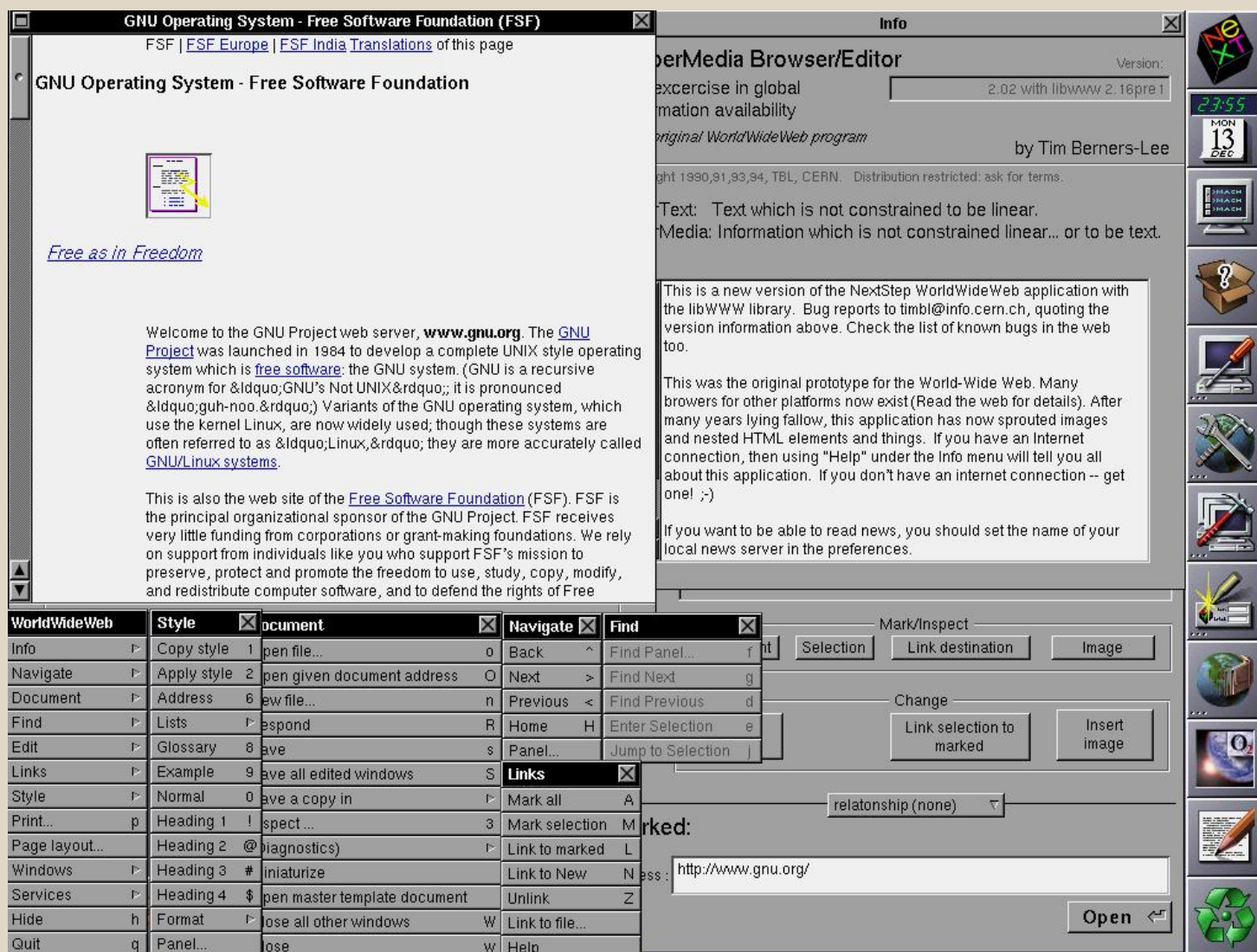
Jeffrey van der Hoeven
Koninklijke Bibliotheek (KB)
National Library of the Netherlands

21 July 2009, London, UK
The Missing Link WA conference

History of web browsers



WorldWideWeb browser - 1991



The screenshot shows the WorldWideWeb browser interface. The main window displays the GNU Operating System page from the Free Software Foundation (FSF). The page includes a logo, the text "Free as in Freedom", and a welcome message to the GNU Project web server. The Info panel on the right shows the browser version (2.02) and the author (Tim Berners-Lee). The bottom panel shows a menu with options like Info, Navigate, Document, Find, Edit, Links, Style, Print, Page layout, Windows, Services, Hide, and Quit.

GNU Operating System - Free Software Foundation (FSF)
 FSF | [FSF Europe](#) | [FSF India](#) | [Translations](#) of this page

GNU Operating System - Free Software Foundation

[Free as in Freedom](#)

Welcome to the GNU Project web server, [www.gnu.org](#). The [GNU Project](#) was launched in 1984 to develop a complete UNIX style operating system which is [free software](#): the GNU system. (GNU is a recursive acronym for "GNU's Not UNIX"; it is pronounced "guh-noo.") Variants of the GNU operating system, which use the kernel Linux, are now widely used; though these systems are often referred to as "Linux," they are more accurately called [GNU/Linux systems](#).

This is also the web site of the [Free Software Foundation](#) (FSF). FSF is the principal organizational sponsor of the GNU Project. FSF receives very little funding from corporations or grant-making foundations. We rely on support from individuals like you who support FSF's mission to preserve, protect and promote the freedom to use, study, copy, modify, and redistribute computer software, and to defend the rights of Free

Info
 Version: 2.02 with libwww 2.16pre1
 by Tim Berners-Lee

This is a new version of the NextStep WorldWideWeb application with the libWWW library. Bug reports to timbl@info.cern.ch, quoting the version information above. Check the list of known bugs in the web too.

This was the original prototype for the World-Wide Web. Many browsers for other platforms now exist (Read the web for details). After many years lying fallow, this application has now sprouted images and nested HTML elements and things. If you have an Internet connection, then using "Help" under the Info menu will tell you all about this application. If you don't have an internet connection -- get one! :-)

If you want to be able to read news, you should set the name of your local news server in the preferences.

WorldWideWeb
 Info, Navigate, Document, Find, Edit, Links, Style, Print, Page layout, Windows, Services, Hide, Quit

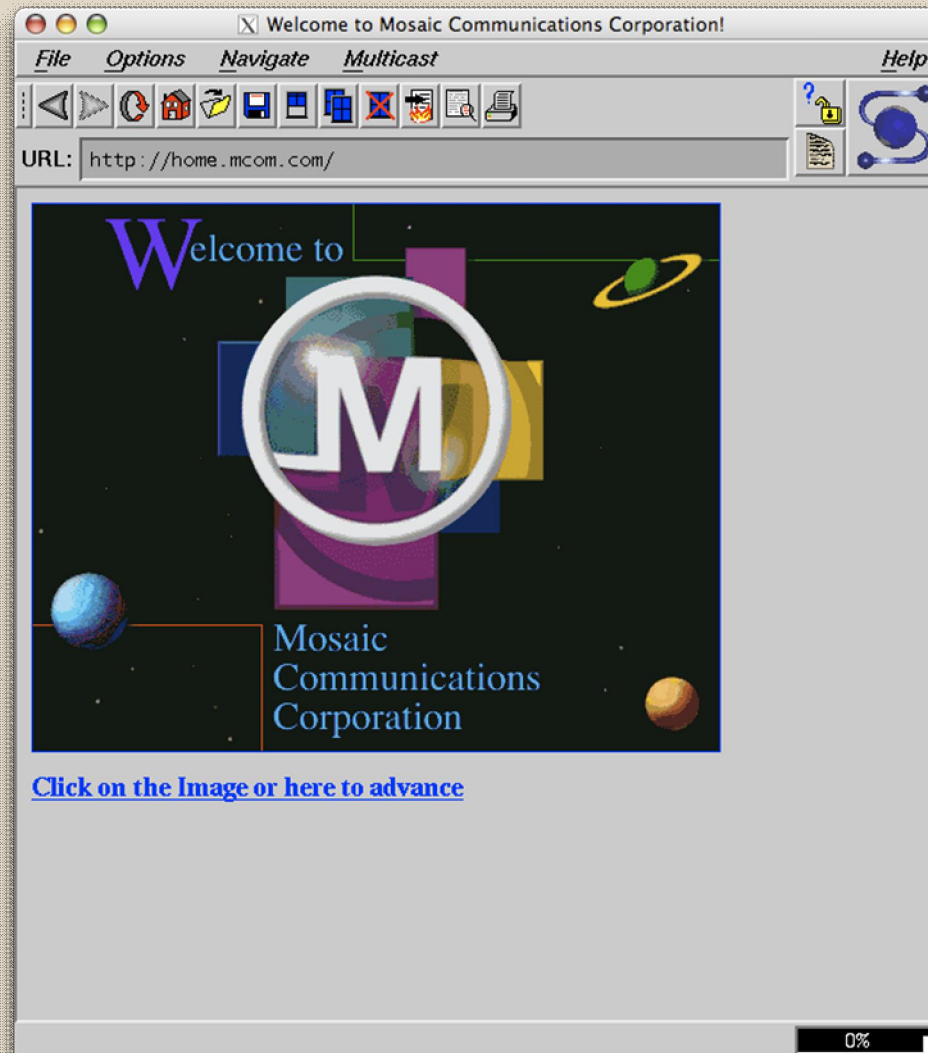
Document
 Open file..., Open given document address, New file..., Respond, Save, Save all edited windows, Save a copy in, Spect..., Diagnostics, Miniaturize, Open master template document, Close all other windows, Close

Navigate
 Back, Next, Previous, Home, Panel..., Mark all, Mark selection, Link to marked, Link to New, Unlink, Link to file..., Help

Find
 Find Panel..., Find Next, Find Previous, Enter Selection, Jump to Selection

Links
 Marked: [http://www.gnu.org/](#)
 Open

Mosaic - 1993



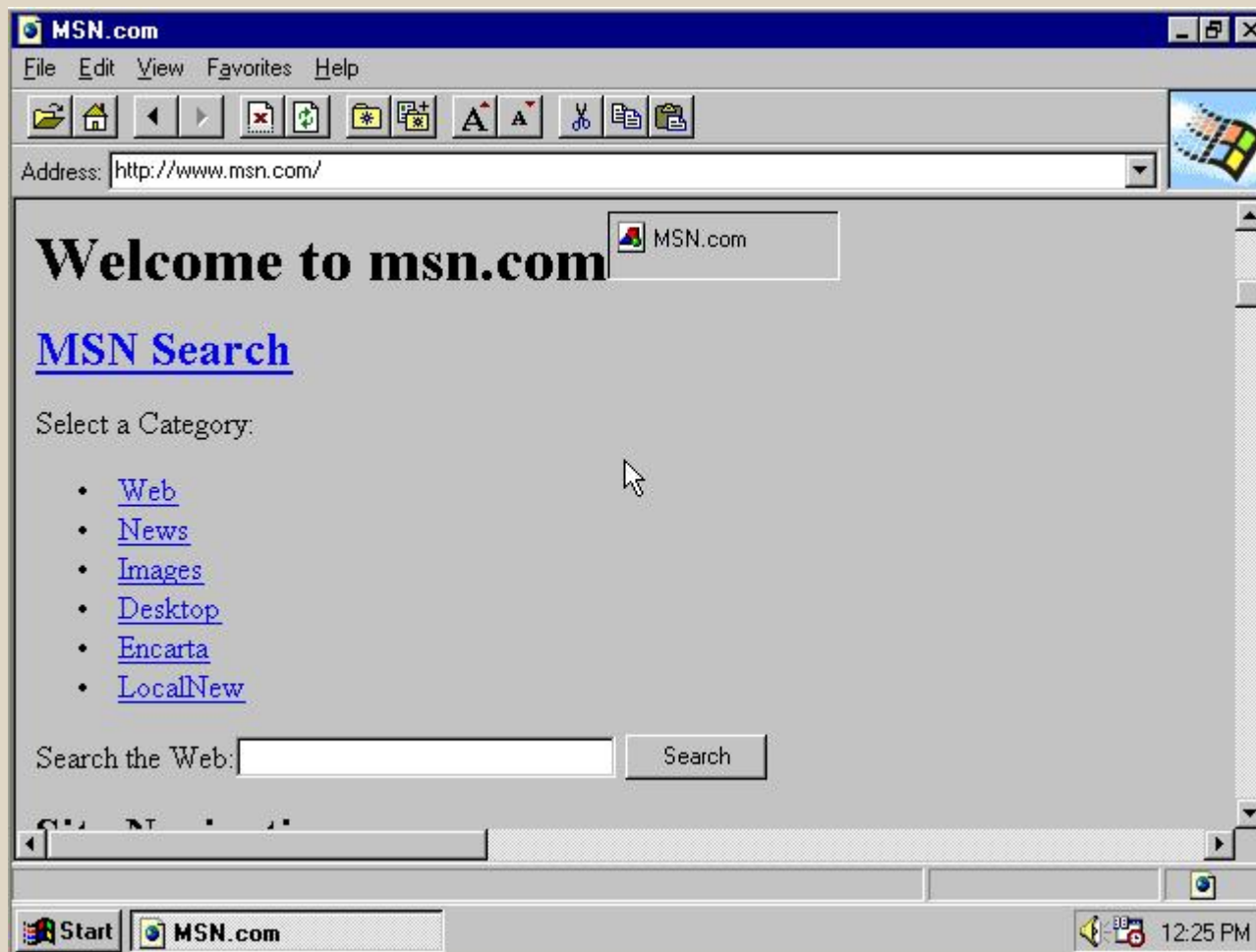
<http://jwz.livejournal.com/856745.html>

Netscape - 1994



<http://bodmas.org/blog/notes/my-new-web-browser/>

Internet Explorer 1.0 - 1995



<http://www.microsoft.com>

Chrome Experiments - H...

← → ↺ ☆ http://www.chromeexperiments.com/ ▶ ⌵ ⚙


Home About Submit Experiment Get Google Chrome

Chrome Experiments
Not your mother's JavaScript.

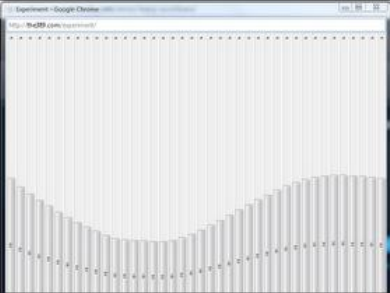
Featured Experiments

Google Chrome - 2009


1-3 of 9 Prev Next



[Canopy](#)
Ryan Alexander
★★★★☆




[Wavy Scrollbars](#)
Andrey
★★★★☆



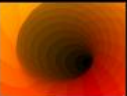
[Ball Pool](#)
Mr.doob
★★★★☆

All Experiments


Most Recent 1-15 of 48 Prev Next




[twitterbrowse](#)
tom
★★★★☆




[Orange Tunnel](#)
txd
★★★★☆




[3D JavaScript with Sandy-HX](#)
Matthew Casperson
★★★★☆



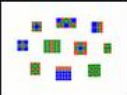
[JavaScript Platformer Demo](#)
Matthew Casperson
★★★★☆




[Depth of Field](#)
Mr.doob
★★★★☆




[Vectomatic](#)
Lukas Laag
★★★★☆




[Roto Game](#)
Felix E. Klee
★★★★☆




[JS Fireworks](#)
Kenneth Kufluk
★★★★☆




[Google Sphere](#)
Mr.doob
★★★★☆



[World of Solitaire](#)
Robert Schultz
★★★★☆




[Canvas Sketch](#)
Henrique Moreira
★★★★☆



[HasCanvas](#)
Robert O'Rourke
★★★★☆

Koninklijke Bibliotheek – National Library of the Netherlands

Projects co-funded by EC FP6 / FP7



Web browsers of today

- Rendering websites
- Bookmarking, history & caching (offline copies)
- Security & authentication
- RSS feeds
- Add-ons (community created plugins)

Techniques & standards:

- URI, HTML, XHTML, CSS, XML, XSLT, SSL, ...
- Java & Java Scripting, .NET
- RSS, RDF, ATOM, ...
- Codecs, Adobe Flash, ActiveX, Quicktime, ...

From WWW-viewer to all-round workplace

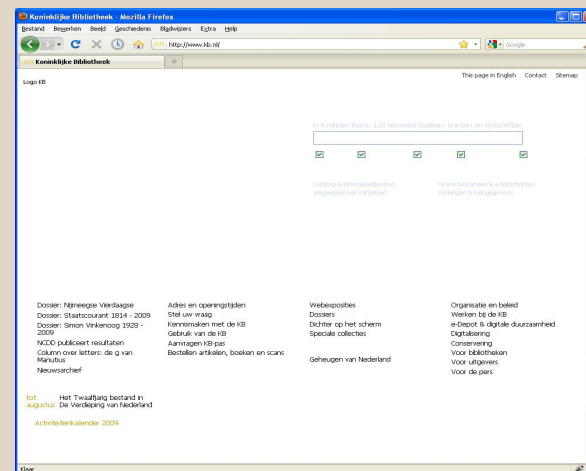
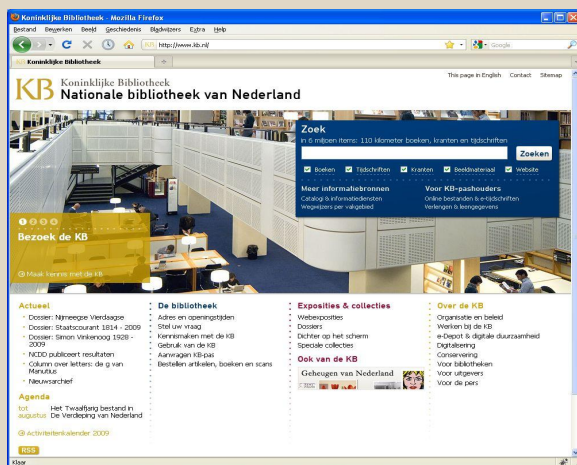
- Integration of media (text, sound, animations, etc.)
- Dynamic & personalised content
- Online collaboration (web 2.0, 3.0, ...)
- SaaS (Software as a Service)
- Browser as central application of a computer (e.g. Google Chrome OS)
- Google Wave is a new tool for communication and collaboration on the web: <http://wave.google.com>

Websites are compatible, browsers are not!

- Different interpretation of website code
- Software dependencies:
 - Operating system
 - Fonts
 - Plugins (Flash, ActiveX)
 - Java Runtime Environment (JRE)
 - Video & Audio codecs

Need for a sustainable solution to render websites!

How emulation works...



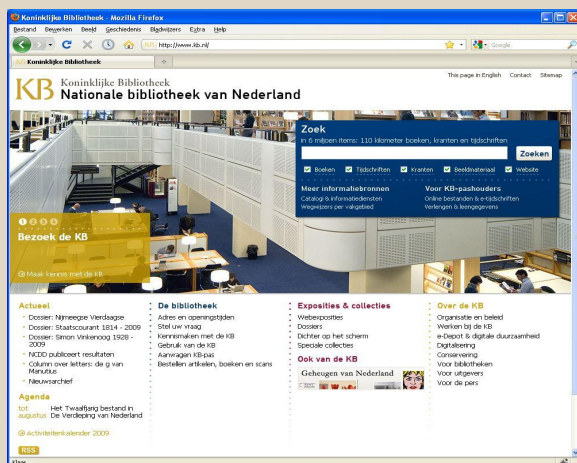
**Operating system
+
Fonts, codecs, plugins**

Old computer

**Operating system
+
Fonts, ?, ?**

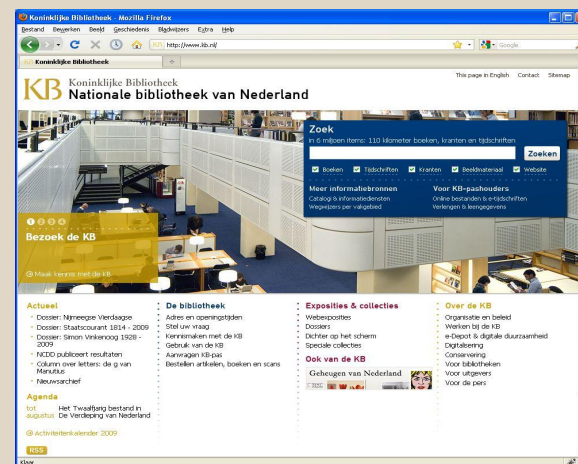
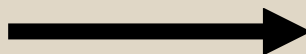
New computer

How emulation works...



Operating system
+
Fonts, codecs, plugins

Old computer

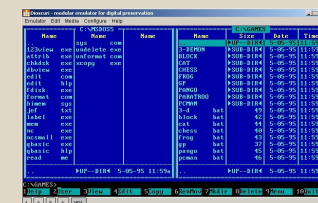


Operating system
+
Fonts, codecs, plugins

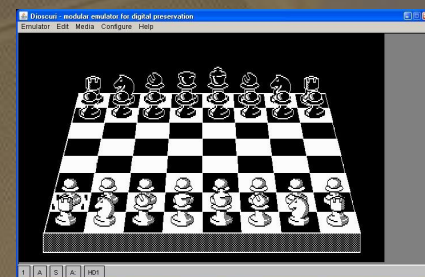
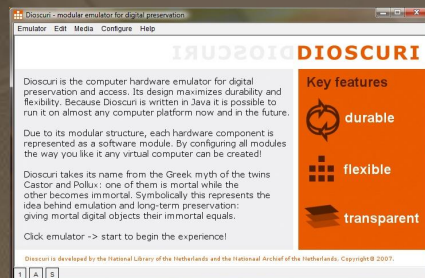
emulator

Operating system

New computer



New computer



Emulation at the KB

- Into emulation since 1999
- Consulted Jeff Rothenberg
- 2005 – 2007: emulation project with Nationaal Archief & Tessella
- DioscURI – the durable emulator
- 2008 – 2010: DioscURI in Planets
- 2009 – 2012: DioscURI in KEEP

<http://dioscURI.sourceforge.net>

DioscURI – emulator for digital preservation

- Current version: 0.4.0 (Beta, Dec 2008)
- Developed in Java

Capable of:

- Running MS-DOS, FreeDOS, Linux 16-bit (ELKS), MS Windows 3.0
- Norton Commander 3.0, WordPerfect 5.1, DrawPerfect 1.1, many games like PC-versions of PacMan, Tetris, Chess and many more. Also **DOS-based web browser Arachne**.
- XML-based module configuration
- Text extraction from emulated environment into the clipboard of host computer.
- Running on many platforms like Intel Windows, PowerPC Mac, Sun Sparc Solaris.

Planets: emulation as a service

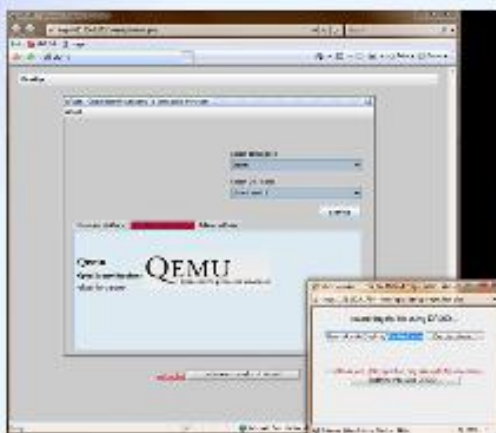


rechenzentrum
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GRATE –



Global **R**emote **A**ccess **T**o **E**mulation-**S**ervices





Keeping Emulation Environments Portable

Objectives:

- Improving transfer of digital data on old media to newer media
- Improving long-term access to digital objects in its original context
- Becoming computer platform independent

Facts and Figures:

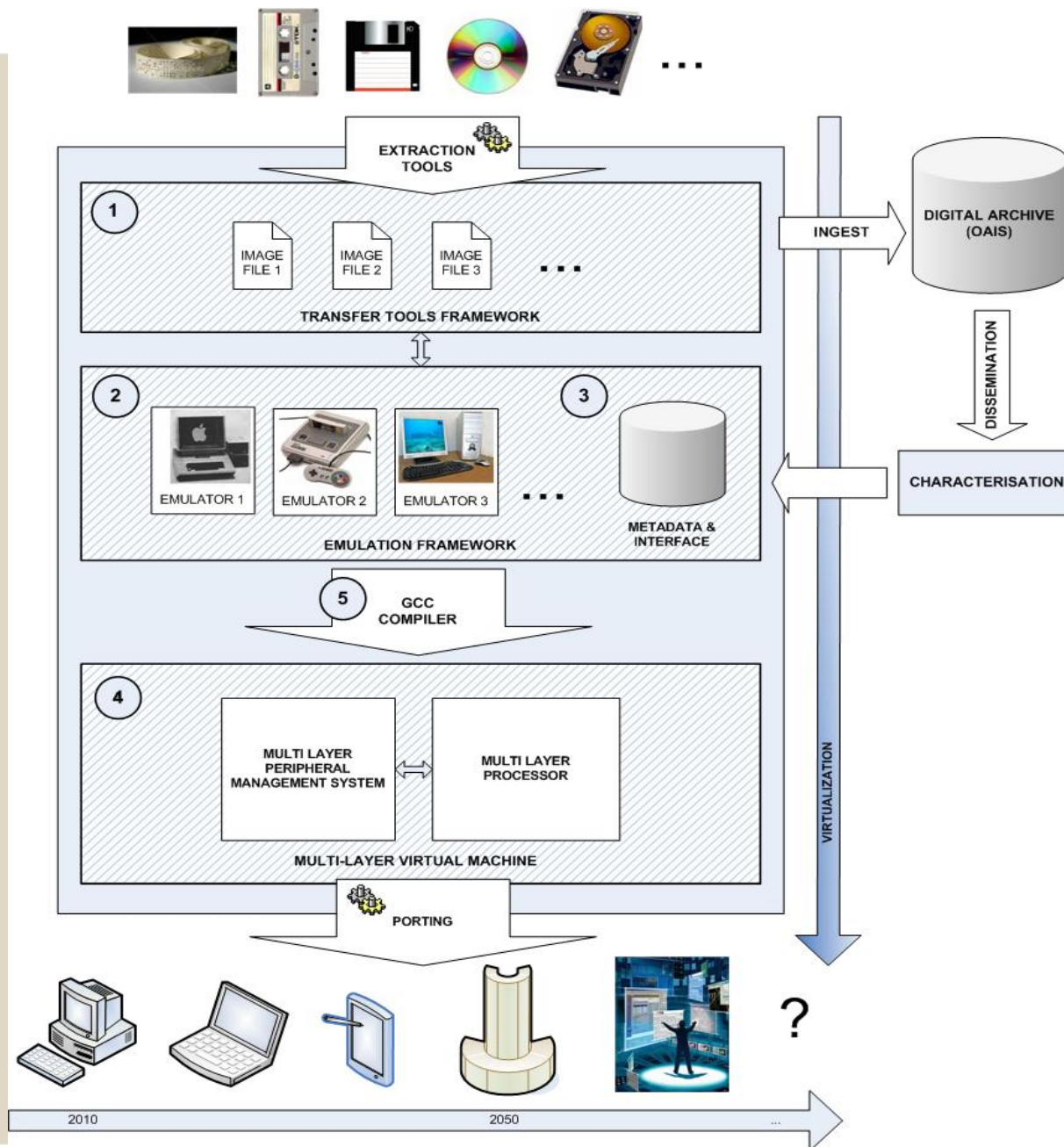
- Duration: Feb 2009 – Feb 2012
- 10 partners ranging from libraries and universities to gaming industry
- EC funding: M€3 through the FP7 ICT Work Programme
- Website: www.keep-project.eu

Dioscuri in KEEP:

- Becomes one of the emulators in the Emulation Framework
- Serves as blue print for development of new emulators

KEEPING EMULATION ENVIRONMENTS PORTABLE





KEEP - Broadcast Yourself. - Mozilla Firefox

BestandBewerkenBeeldGeschiedenisBladwijzersExtraHelp

http://www.keep-project.eu

☆

Google

KEEP

Broadcast Yourself™
Worldwide | English


Sign Up | QuickList (0) | Help | Sign In

HomeEmu'sChannelsCommunity


Search


Upload


Emulations being runned right now...




Mario Brothers...












Promoted emulators




Dioscuri
21,717 views



QEMU
290,647 views





MAME
16,434 views



MSX
849,441 views

What's New

 **KEEP** in High Definition


 Watch **KEEP** on your TV

Read more in our Blog


Featured Emulations

See More


FeaturedMost ViewedMost DiscussedTop Favorited




Golf: Hole in one
Play golf with this game of 1985 running on MAME.
★★★★★ 106,970 views



Microsoft Windows 3.0
Experience the first widely used version of Windows.
★★★★★ 362,217 views



Chess: check-mate
Imagine a 3D-view of the game chess on the PC. In 1991 it became reality.
★★★★★ 282,729 views



Norton Commander 3.0
Sort your documents with the most popular filebrowser ever made

Questions?

Dioscuri website:

<http://dioscuri.sourceforge.net>

Try out an old browser yourself!

<http://browsers.evolt.org>

Contact:

jeffrey.vanderhoeven@kb.nl