



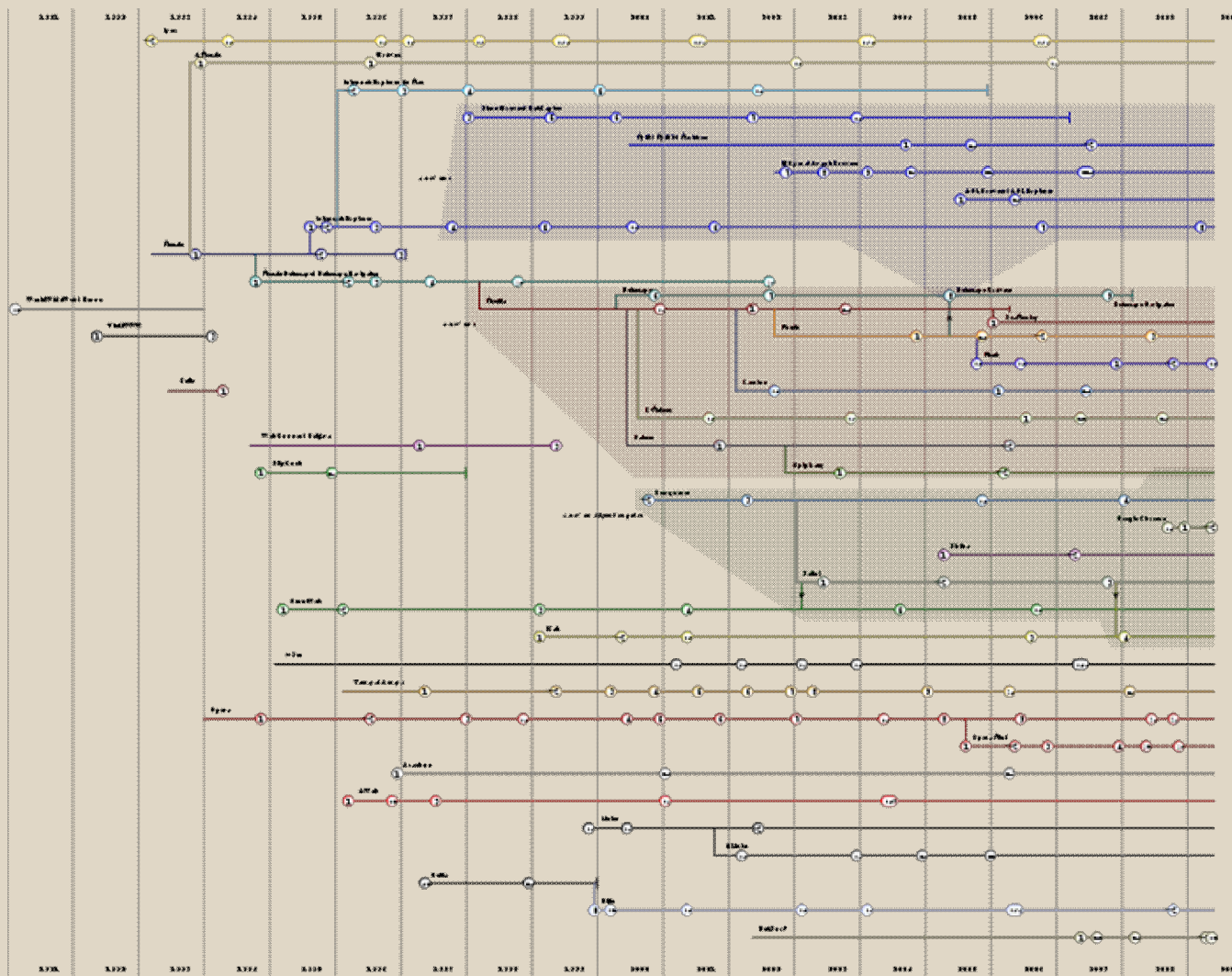
Emulating access to the web 1.0

Save the browser!

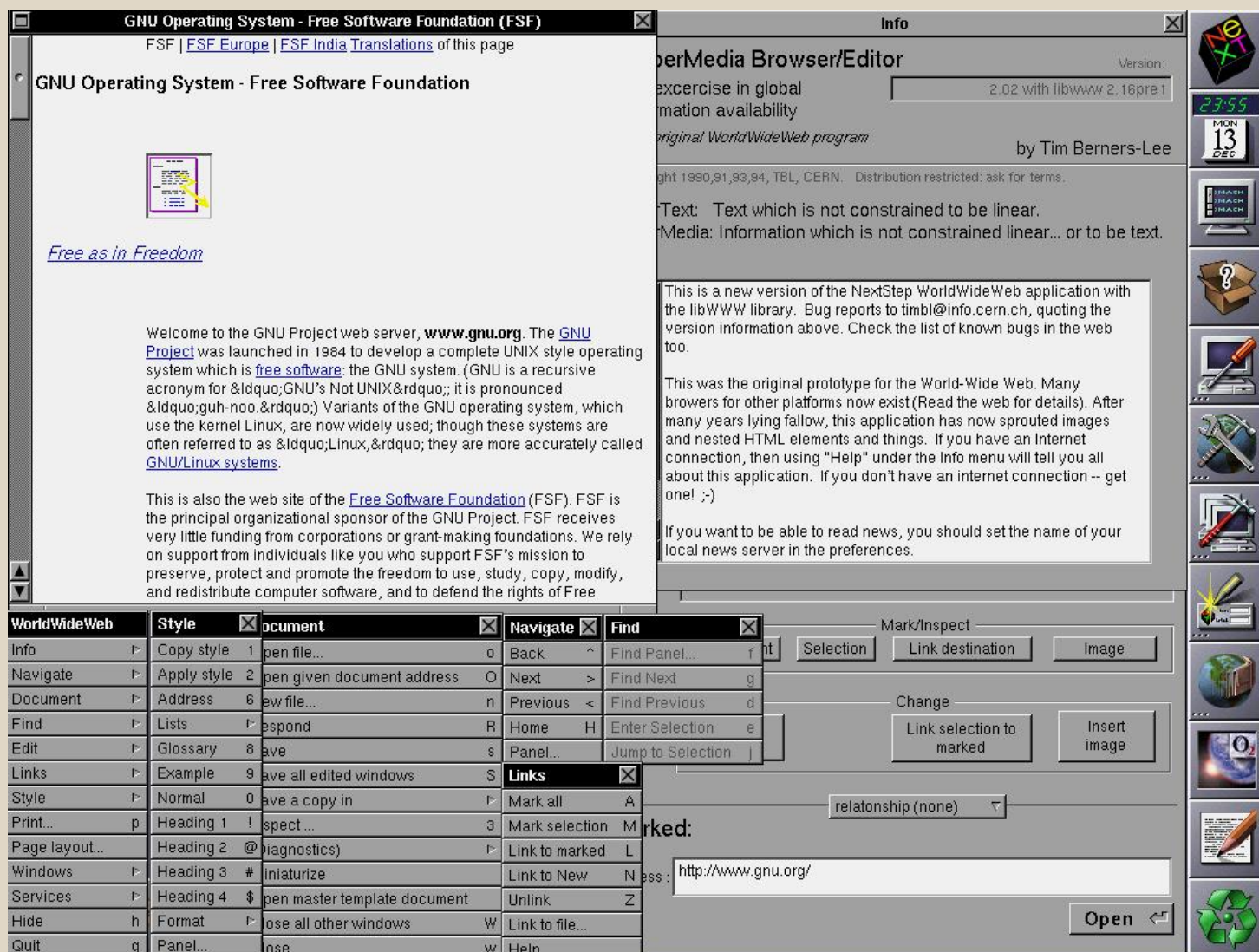
Jeffrey van der Hoeven
Koninklijke Bibliotheek (KB)
National Library of the Netherlands

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 browser's Info window is open, showing details about the application, including its version (2.02) and the author (Tim Berners-Lee). The browser's menu bar and toolbar are visible at the bottom.

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

WorldWideWeb Browser/Editor
 Version: 2.02 with libwww 2.16pre1
 by Tim Berners-Lee

exercise in global information availability
 original WorldWideWeb program

Text: Text which is not constrained to be linear.
 Media: Information which is not constrained linear... or to be text.

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

Style
 Copy style, Apply style, Address, Lists, Glossary, Example, Normal, Heading 1, Heading 2, Heading 3, Heading 4, Format, Panel...

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...

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

Links
 Mark all, Mark selection, Link to marked, Link to New, Unlink, Link to file..., Help

Mark/Inspect
 Selection, Link destination, Image

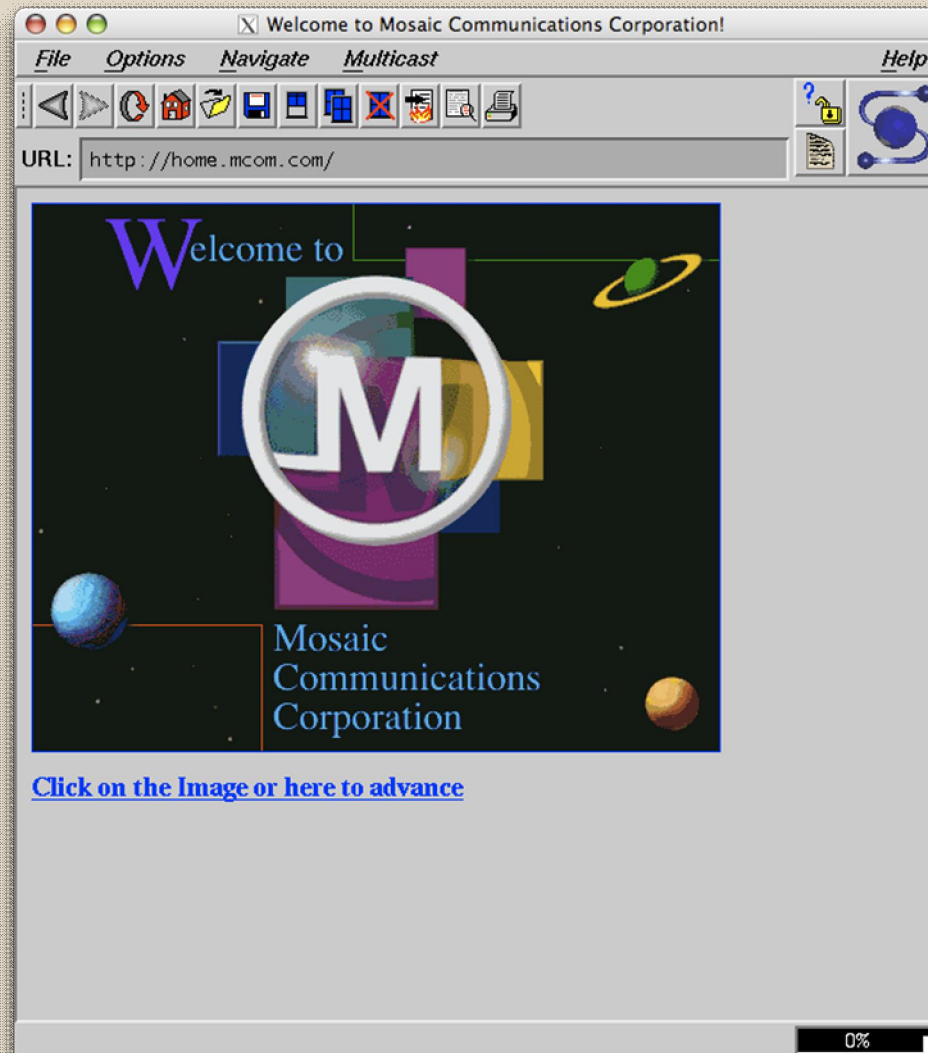
Change
 Link selection to marked, Insert image

relationship (none)

Marked:
 Address: <http://www.gnu.org/>

Open

Mosaic - 1993



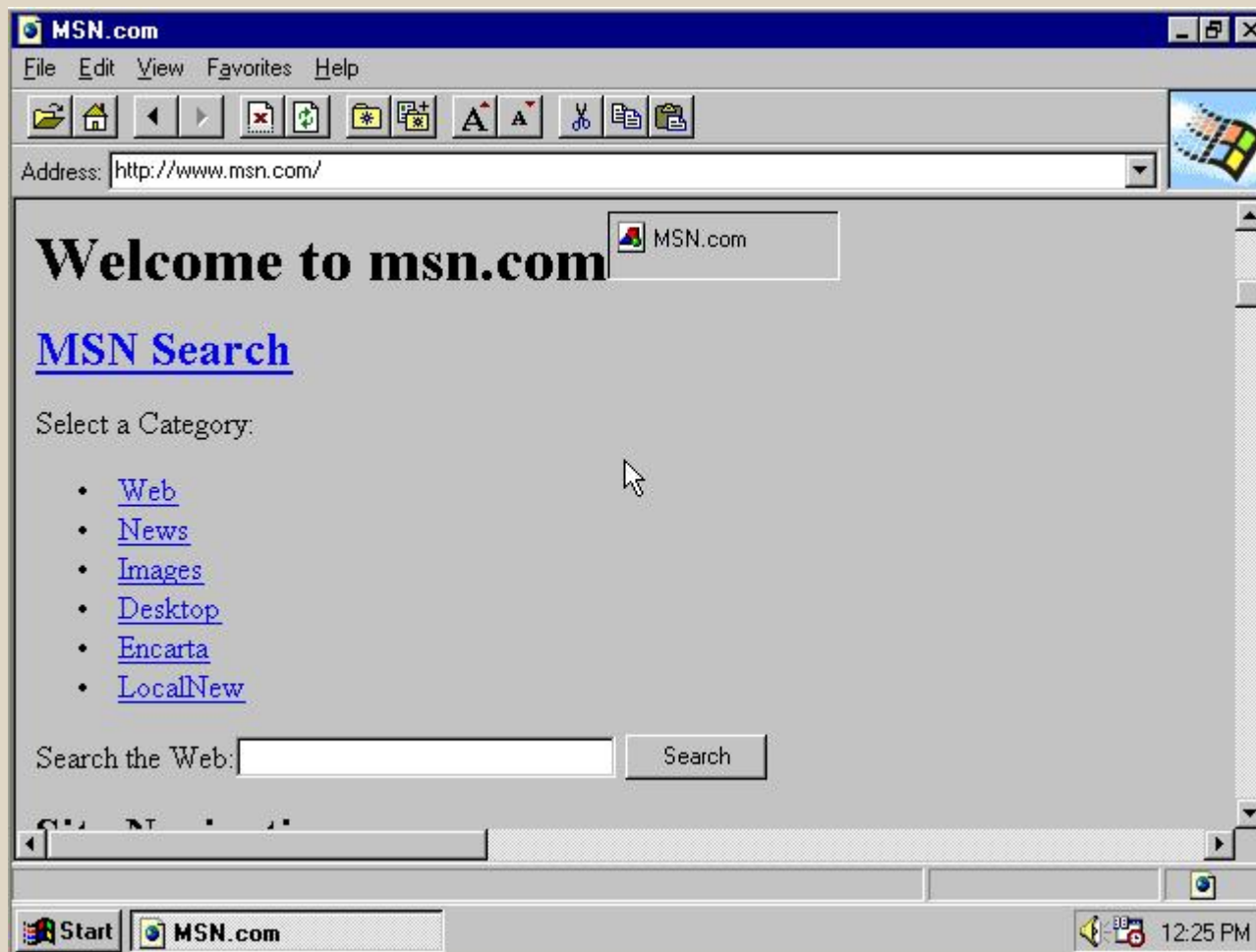
<http://jwz.livejournal.com/856745.html>

Netscape - 1994



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

Internet Explorer 1.0 - 1995



<http://www.microsoft.com>

Chrome Experiments - H...

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http://www.chromeexperiments.com/

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HomeAboutSubmit ExperimentGet Google Chrome

Chrome Experiments
Not your mother's JavaScript.

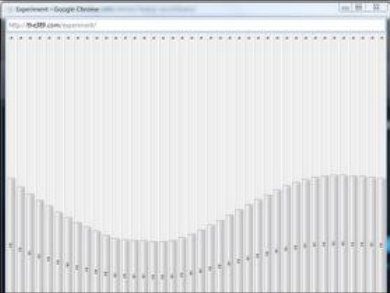
Featured Experiments

Google Chrome - 2009


1-3 of 9PrevNext



[Canopy](#)
Ryan Alexander
★★★★☆




[Wavy Scrollbars](#)
Andrey
★★★★☆



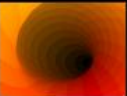
[Ball Pool](#)
Mr.doob
★★★★☆

All Experiments


Most Recent1-15 of 48PrevNext




[twitterbrowse](#)
tom
★★★★☆




[Orange Tunnel](#)
txd
★★★★☆




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



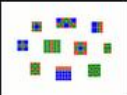
[JavaScript Platformer Demo](#)
Matthew Casperson
★★★☆☆




[Depth of Field](#)
Mr.doob
★★★★☆




[Vectomatic](#)
Lukas Laag
★★★★☆




[Roto Game](#)
Felix E. Klee
★★★★☆




[JS Fireworks](#)
Kenneth Kufluk
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[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

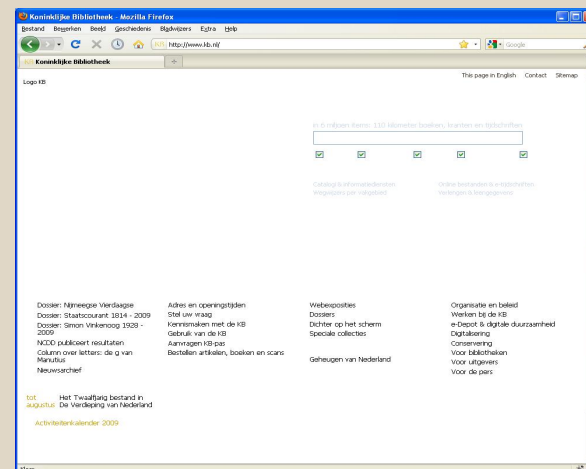
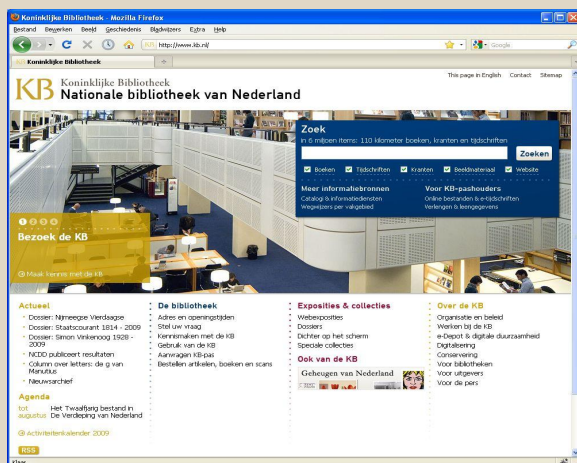
- Integration of media (text, sound, animations, etc.)
- Dynamic & personalised content
- Online collaboration (web 2.0, 3.0, ...)
- SaaS (Software as a Service)
- Browser as central application of a computer (e.g. Google Chrome OS)
- Google Wave is a new tool for communication and collaboration on the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



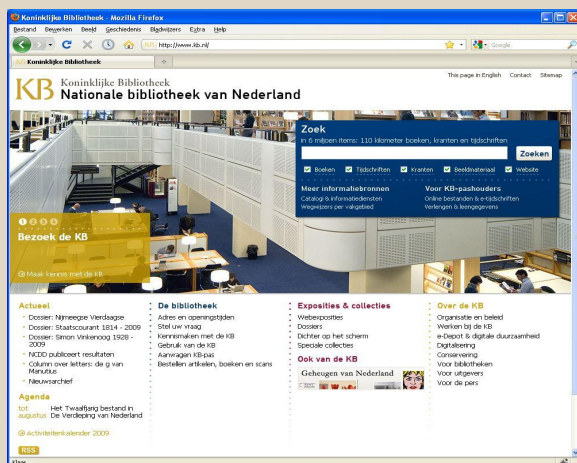
**Operating system
+
Fonts, codecs, plugins**

Old computer

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

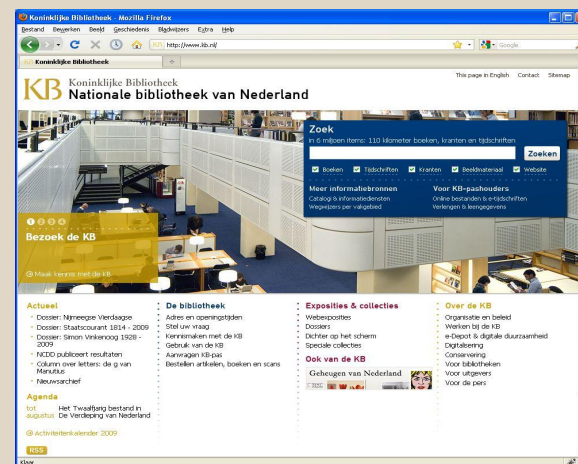
New computer

How emulation works...



Operating system
+
Fonts, codecs, plugins

Old computer

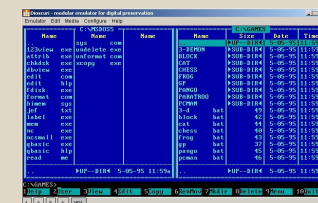


Operating system
+
Fonts, codecs, plugins

emulator

Operating system

New computer



New computer



- **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

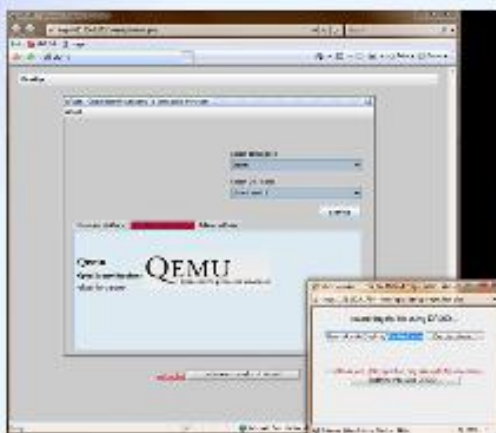


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GRATE –



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:

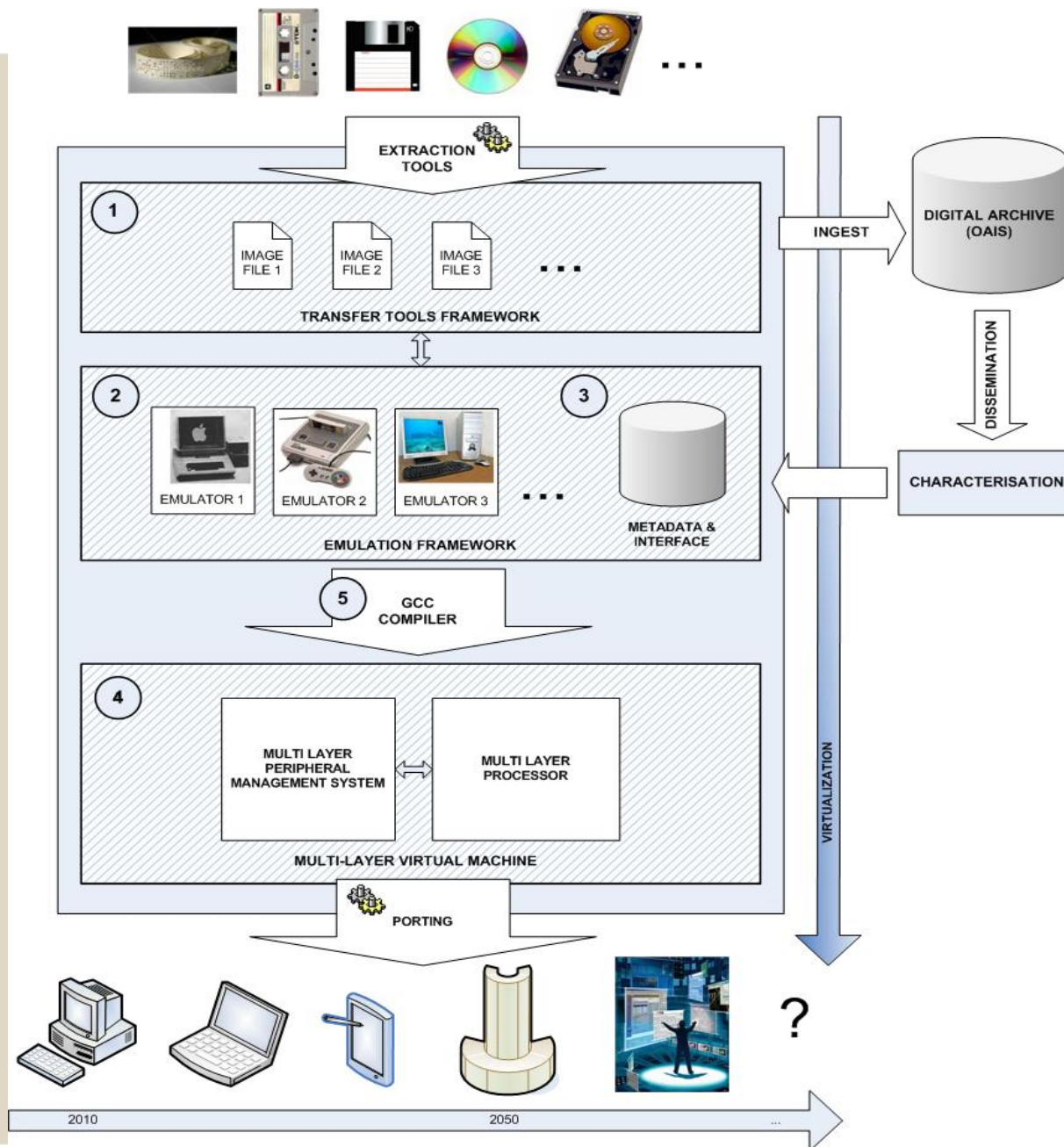
- Duration: Feb 2009 – Feb 2012
- 10 partners ranging from libraries and universities to gaming industry
- EC funding: M€3 through the FP7 ICT Work Programme
- Website: www.keep-project.eu

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

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http://www.keep-project.eu

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🔍

Google

KEEP

Broadcast Yourself™
Worldwide | English

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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

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Featured

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Most Discussed

Top 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