Preservation Actions – Sara van Bussel

The National Library of The Netherlands

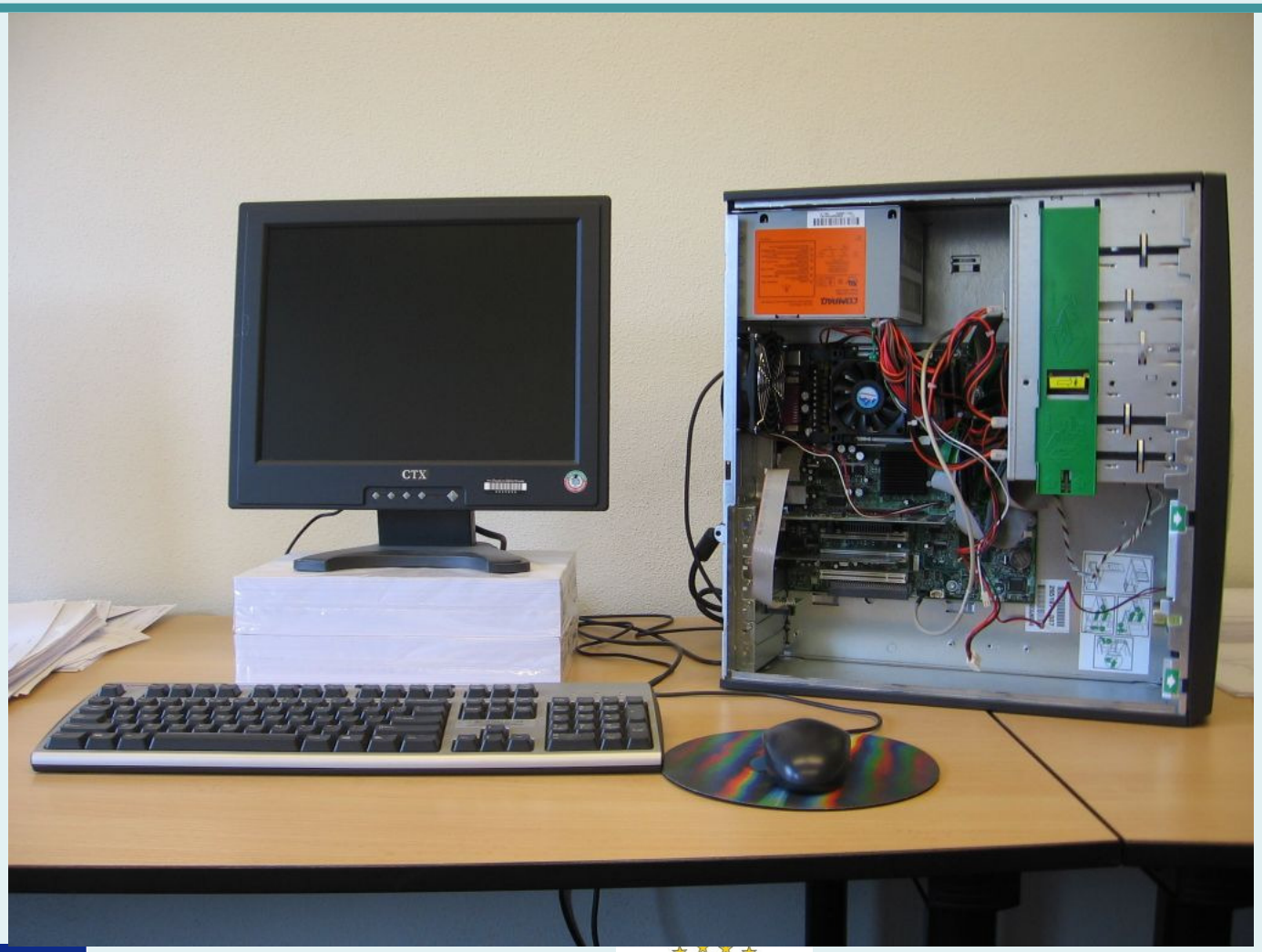
Preservation Actions

- Types of preservation action
  - Migration
  - Emulation
    - Dioscuri
    - GRATE
- Planets Core Registry

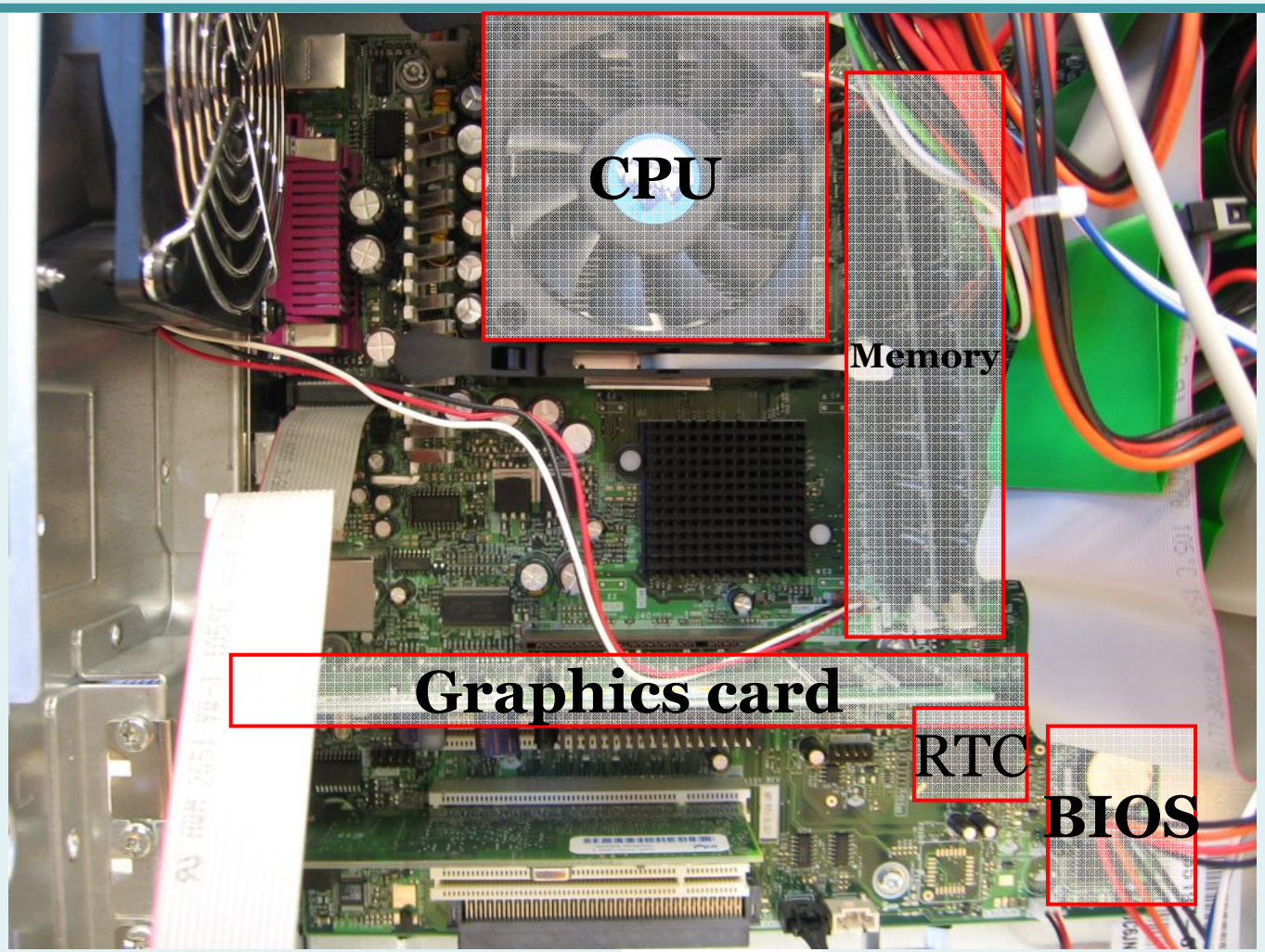
Types of preservation action

Emulation - Dioscuri

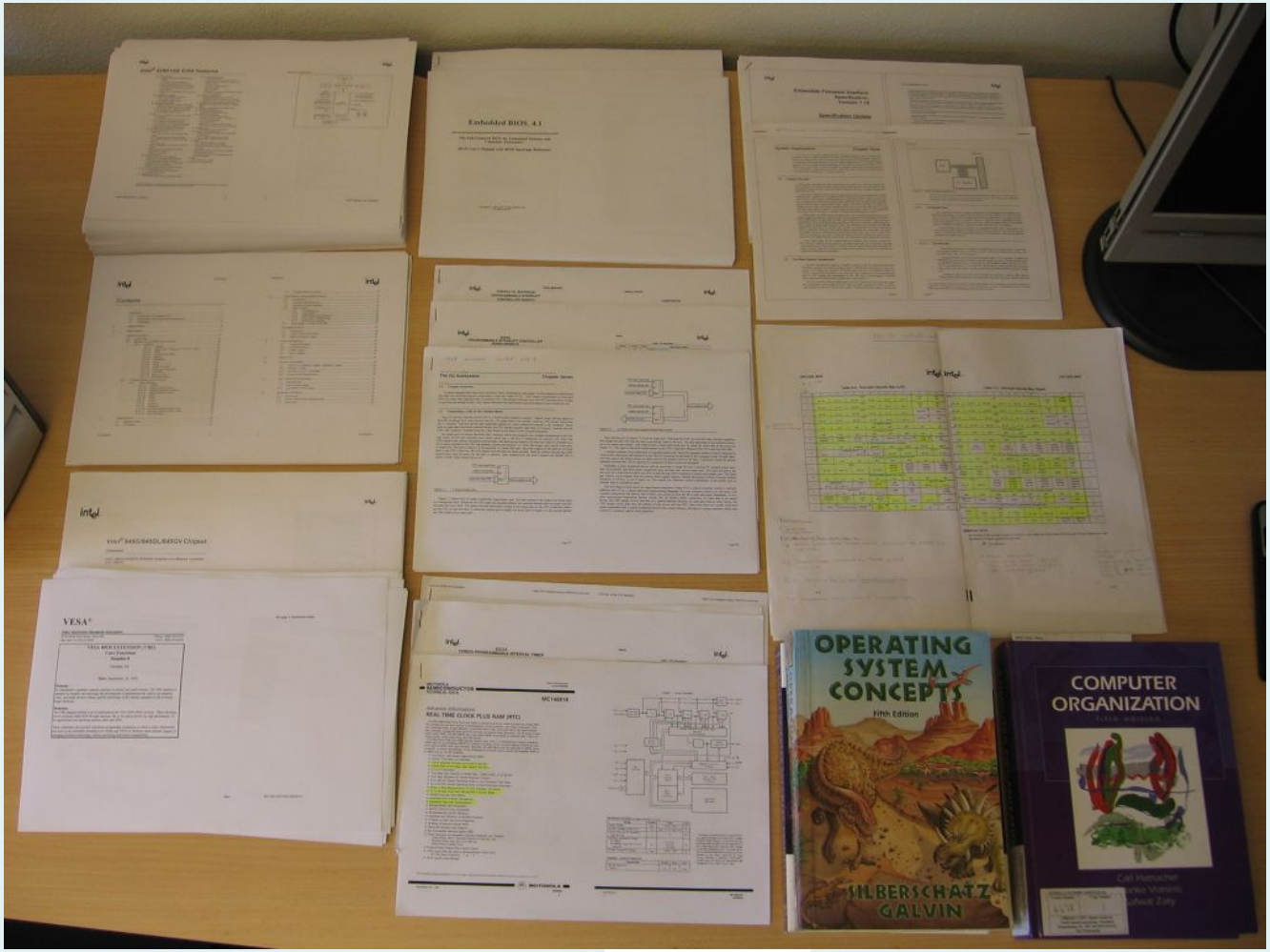
Dioscuri - Original source PC



Dioscuri - Original source PC



Dioscuri - Documentation



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Dioscuri - Results

- Modular emulator for digital preservation
- Programmed in Java using JVM
- Current version: 0.4.0 (Beta)
- Easy to use interface (GUI) offering process control, media management and configuration editor

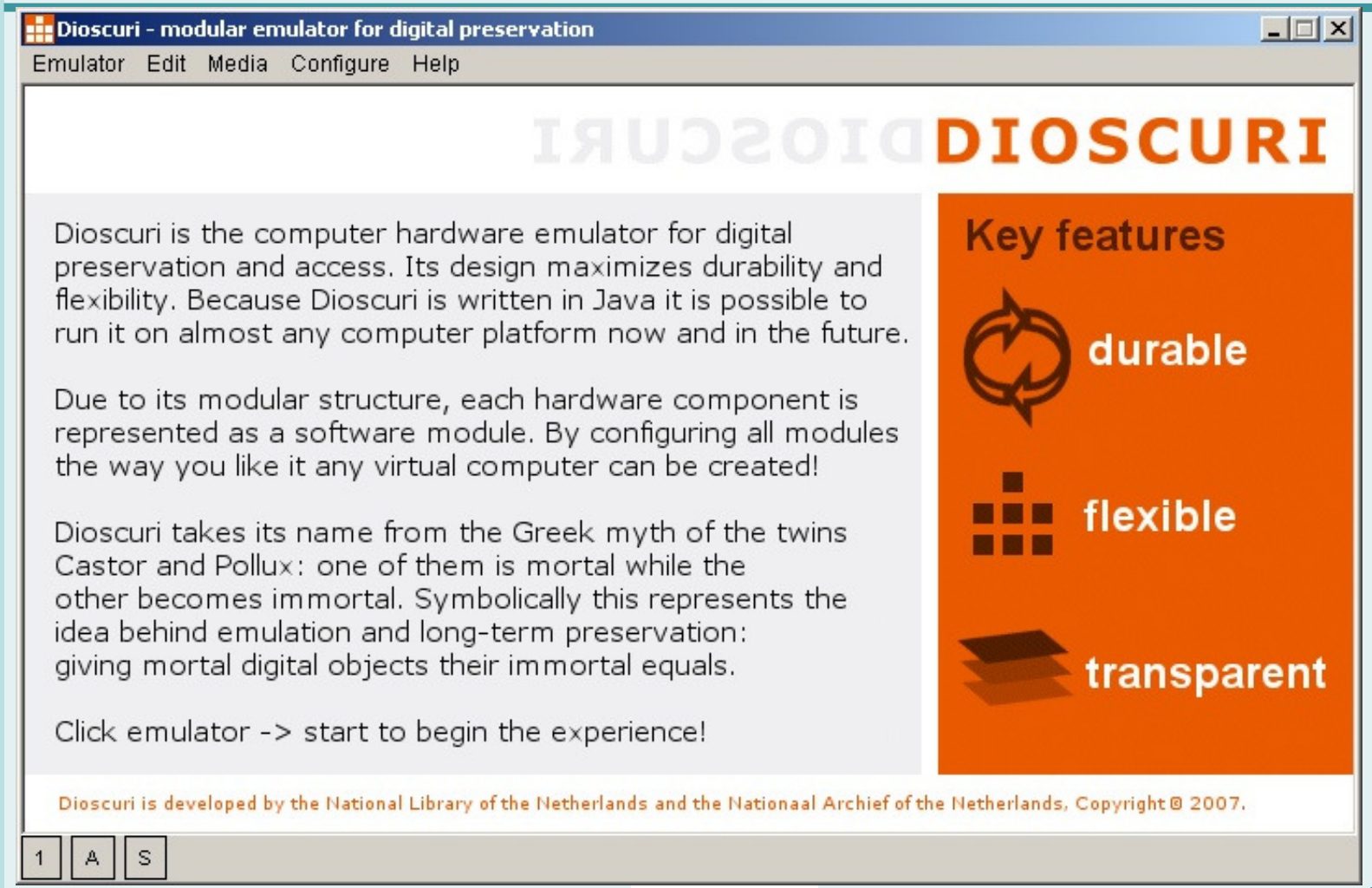
Dioscuri - Specifications

- Virtual machine hardware
  - 16-bit Intel 8086-based CPU, DMA-support, IRQ-handling
  - 1 MB RAM
  - Storage devices: floppy, HDD
  - Input devices: keyboard
  - Output devices: VGA, screen
  - System BIOS: Bochs BIOS
  - VGA BIOS: Plex86/Bochs VGA BIOS
- Host Platforms
  - Windows XP, Linux Fedora Core 4, Sun Sparc Solaris, all running JRE v1.5.x

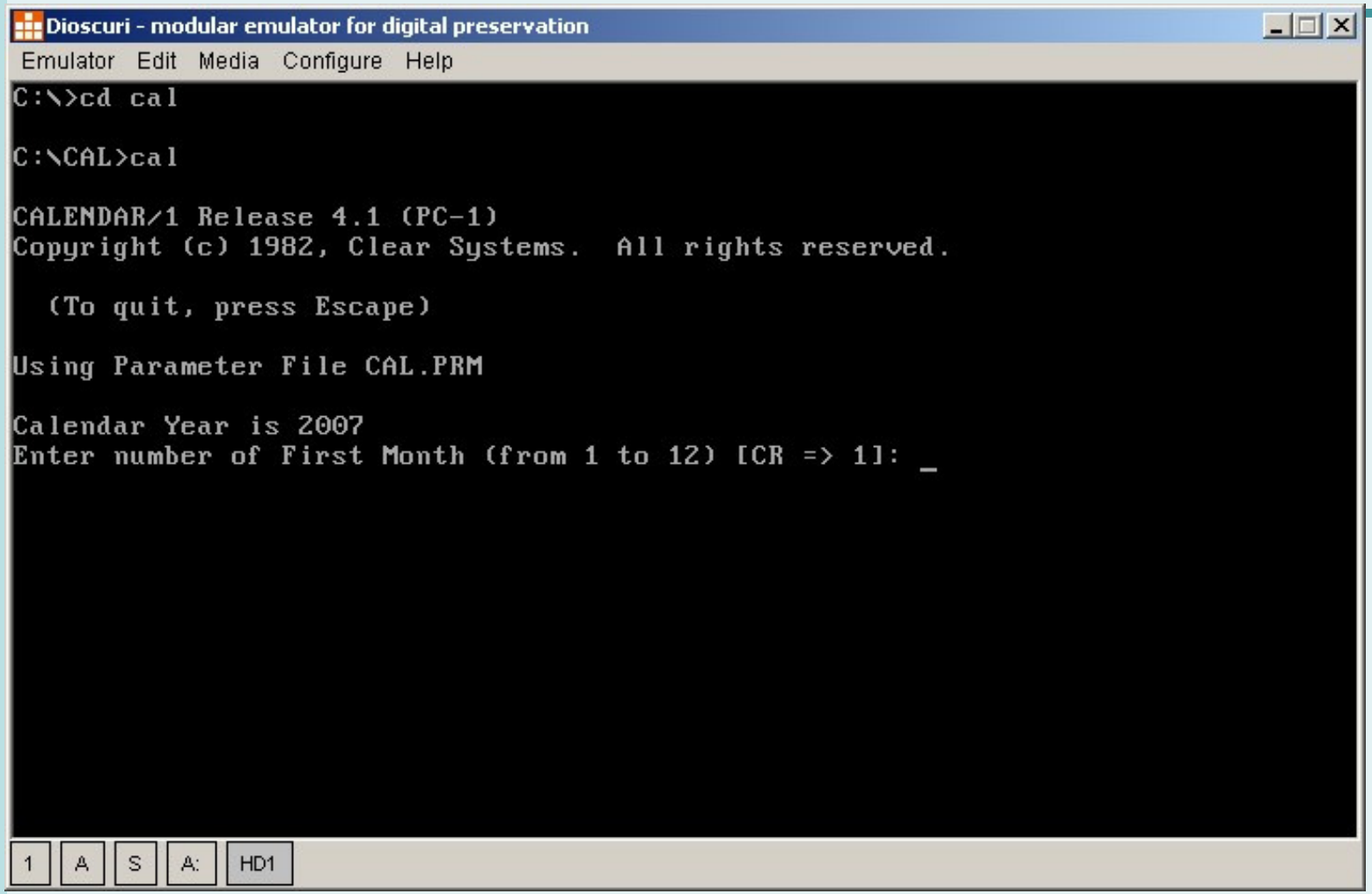
Dioscuri - Specifications

- 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 webbrowser Arachne
  - XML-based module configuration
  - Text extraction from emulated environment into the clipboard of host computer.

Dioscuri – Start up screen



Dioscuri – MSDos running Calendar



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Dioscuri – Running Ironman

http://dioscuri.sourceforge.net
for more information and download

KB nationaal archief planets DIOSCURI

Dioscuri - the modular emulator

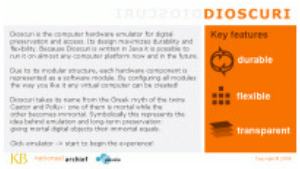
Dioscuri is an x86 computer hardware emulator written in Java. It is designed by the digital preservation community to ensure documents and programs from the past can still be accessed in the future.
The Dioscuri emulator has two key features: it is durable and flexible. Because it is implemented in Java, it can be ported to any computer platform which supports the Java Virtual Machine (JVM), without any extra effort. This reduces the risk that emulation will fail to work on a single architecture in the future, as it will continue to work on another architecture.
Dioscuri is flexible because it is completely component-based. Each hardware component is emulated by a software surrogate called a module. Combining several modules allows the user to configure any computer system, as long as these modules are compatible. New or upgraded modules can be added to the software library, giving the emulator the capability to run these.

Dioscuri is the best choice to retain access to your old documents, games and other applications!

Latest news

11 December 2008
A new release of Dioscuri has been made available by the Dioscuri project team. The new version (0.4.0) offers the following improvements:

- Added backwards compatibility with JRE 1.5
- Added command-line interface
- Improved 32-bit CPU
- Fixed minor bugs in modules CPU
- Updated GUI



For an overview of the full change history, please check the changelog.

Download: Dioscuri version 0.4.0

Dioscuri
- Idea and key features
- Digital Preservation
- Screenshots
- Latest news!

Downloads
- Latest version
- All versions / sourcecode
- Disk images

Documentation
- User manual
- Reference docs
- Javadoc
- Changelog

Support
- FAQ
- Forum

Development
- Buglist (tracker)
- Feature requests (tracker)
- Roadmap

Contact
- About project team
- Join development!
- Mailinglist

Types of preservation action

Emulation - GRATE

GRATE - Emulation as a Service

- Emulation requires some effort until object of interest is actually accessible
  - Average archive user is often not trained computer professional
  - Range of problems to setup emulation environment on average machines (with unknown software environment)
  - Many software components needed are proprietary
- GRATE provides Global Remote Access To Emulation
  - PRONOM detection of object type
  - Recommended view path is provided
  - By clicking on an URL the emulator is opened with the object

GRATE – Global Remote Access To Emulation

- Global remote access to emulation (services)
  - Client side: Java application executable in average browsers with JRE 1.5
  - Server side: Standard Linux environment to host the several emulators
  - Running different emulators like Dioscuri, QEMU, MESS, …
  - Extensible to more emulators, environments
  - Up- and download of objects
  - Object transport via virtual floppies

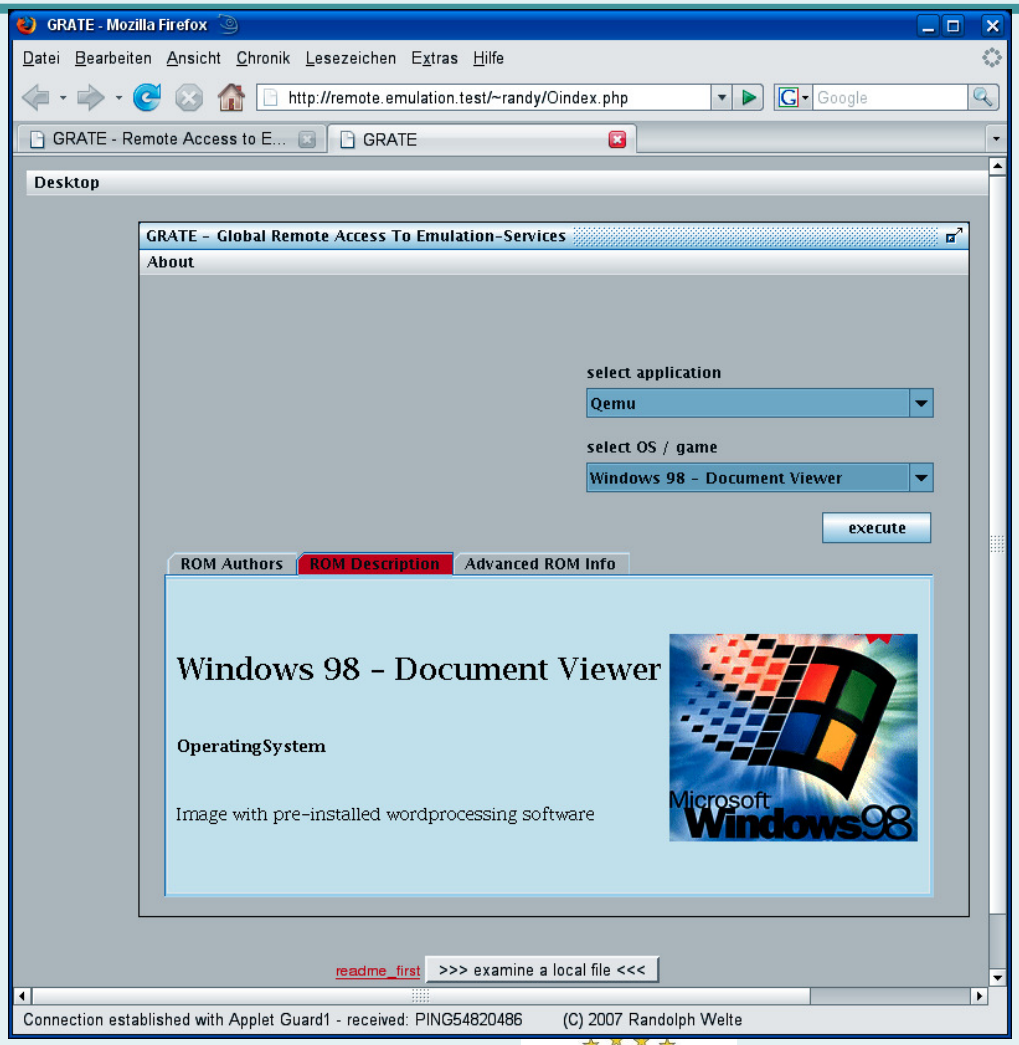
GRATE - Data Exchange for Emulation Environments

- Major issue: Object transport into emulation environment (and out of it)
- Means of object transport, depending on emulator used
  - Virtual optical (ISO) or floppy disks as images
  - Network connections like FTP, SMB/CIFS
  - “Shared Folders”
  - Copy & Paste

Emulation Examples in GRATE

- Dioscuri X86 emulator recreating an 286, 386 PC of the early 1990s
  - Java programming language, modular approach – components like disk, floppy, VGA, CPU, RAM put together form the machine
  - Running DOS and Windows 3.0
- QEMU – popular C programming language multi architecture emulator for X86, PPC, Sparc, ...
  - Used for Windows 3.1 and 95, 98 environments in GRATE
  - MESS, DOSBOX, Hatari, ...

GRATE – Selection of emulator and service



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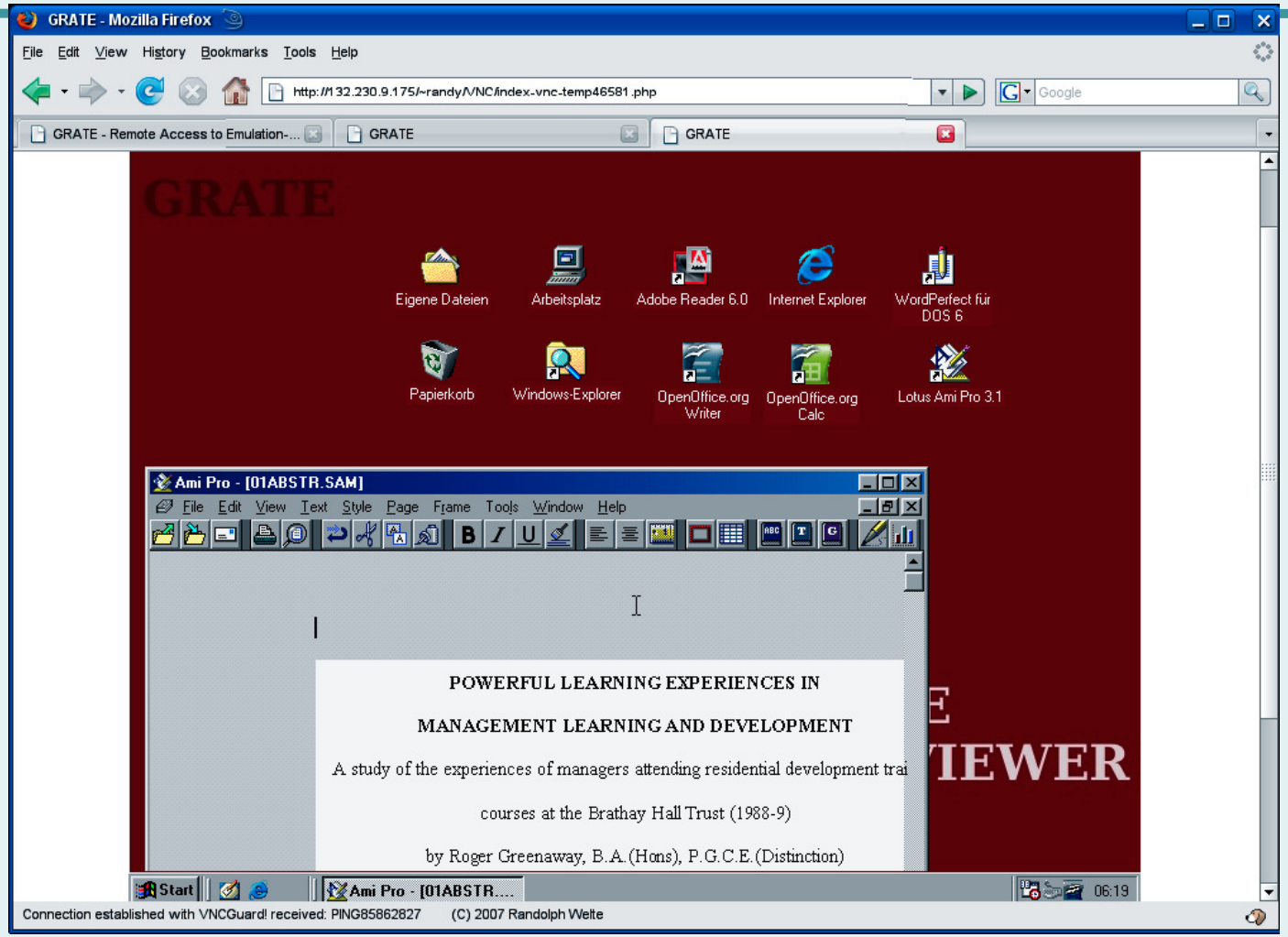
GRATE – Running Windows 98 in browser



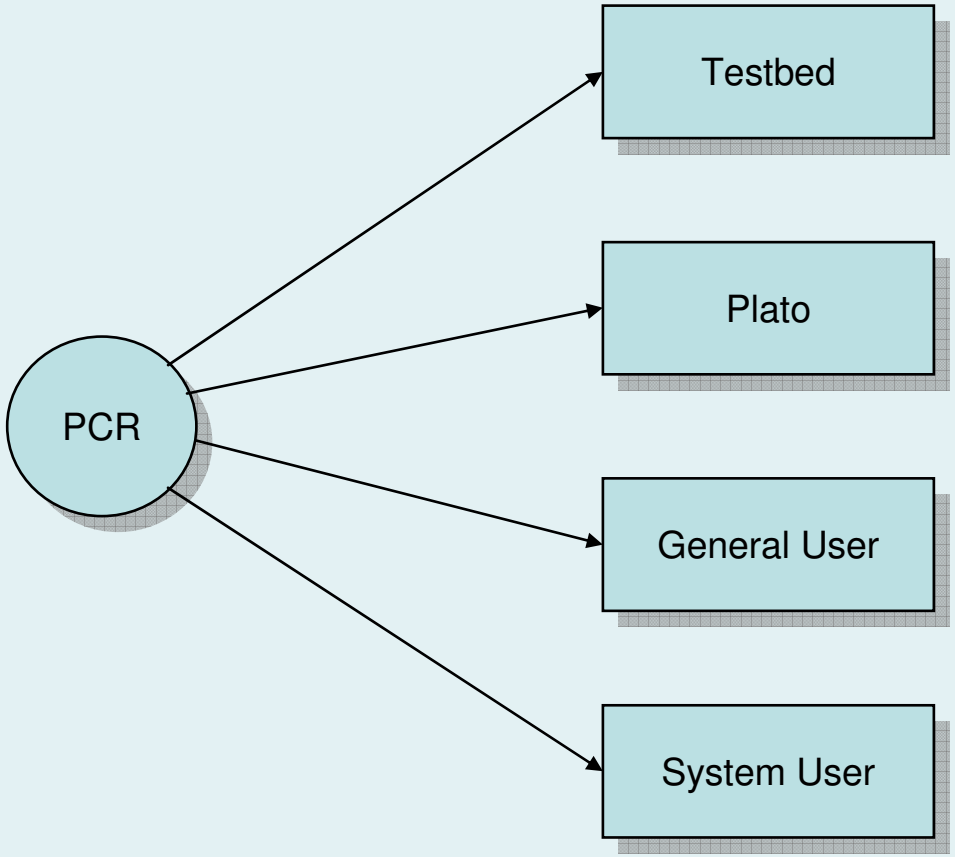
Planets Core Registry

Planets Core Registry

- Based upon Pronom
  - Existing file format registry developed by The National Archives
- Combined registry for preservation action software and file formats
  - Contains information about:
    - File formats
    - Software
    - Hardware
    - Media

Planets Core Registry – Demo

Relationships of the Core Registry



Test results from the Testbed are stored in the registry.

Plato retrieves information about file formats and preservation action tools from the registry.

A general user can use the web interface to search for information in the registry.

Web services can be used by applications to access information stored in the registry.

Testbed

- Test results will be integrated into the Planets Core Registry, on Pathway records
- Test results will be accessible from:
  - File formats
  - Software packages
  - Software tools
- Test results will be shared with:
  - Plato
  - System users

Plato

- Plato will retrieve information from the Planets Core Registry about:
  - File formats
  - Software tools
  - Risks
  - Pathways

General User

- A general (human) user can search the Planets Core Registry through a web interface
- Can be used in the same manner as Pronom, to search for background information
- Added information about
  - Software packages
  - Pathways
  - Technical environments

System user

- Extracting information from the Planets Core Registry is possible through web services
- Requested information is delivered in XML

Thank you for listening

Questions?

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