



Migrating Desktop

Uniform Access to the Grid

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Outline

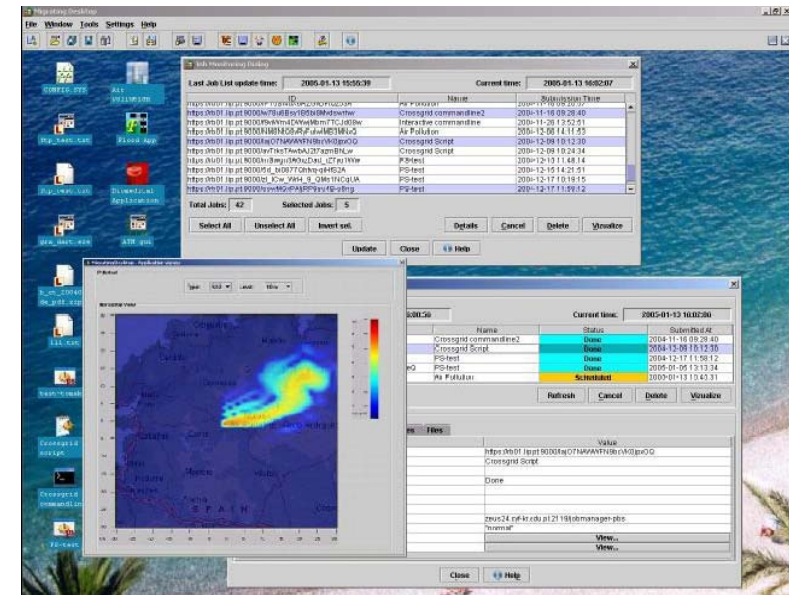
- ❑ General idea
- ❑ User's perspective: Migrating Desktop functional overview
- ❑ Supported infrastructures and applications
- ❑ Developer's perspective: Plug-ins: how to add your application
- ❑ Product timeline and plans



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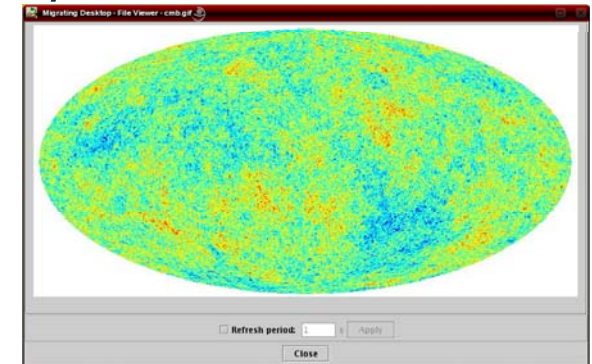
- ❑ Intuitive user's working environment
- ❑ Independence of a hardware platform and the operating system
- ❑ Advanced **user-friendly** Java application based on web services
- ❑ A flexible personalised environment available independently of the user location
- ❑ Easily extendable framework
- ❑ Good support for grid applications
- ❑ Uniform access to the Grid





User's perspective

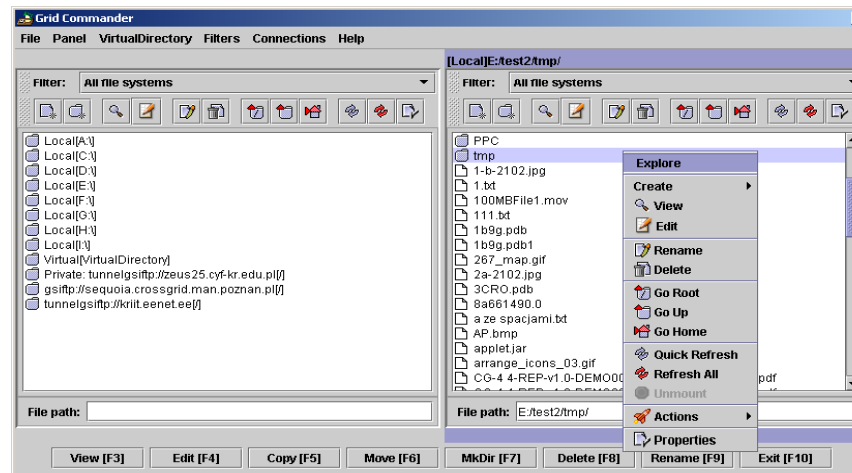
- ❑ Supported features:
 - ▶ **Single sign-on** (x.509 certificates, VOMS extensions)
 - ▶ Running sequential and **parallel applications** (OpenMPI support)
 - ▶ Batch and **Interactive jobs** support (i2gLogin supported)
 - ▶ Advanced **remote visualisation** and applications **real time steering** (gVid)
 - ▶ Visualisation of partial results while job is running
- ❑ Built-in tools: Grid Commander, Job Wizard, Job Monitoring, Profile Manager, Application Containers, VNC/ssh consoles
- ❑ Bug tracking system (based on JIRA)
 - ▶ <http://ras.man.poznan.pl/jira>
- ❑ User guide and tutorials
 - ▶ <http://desktop.psnc.pl>





Grid Commander

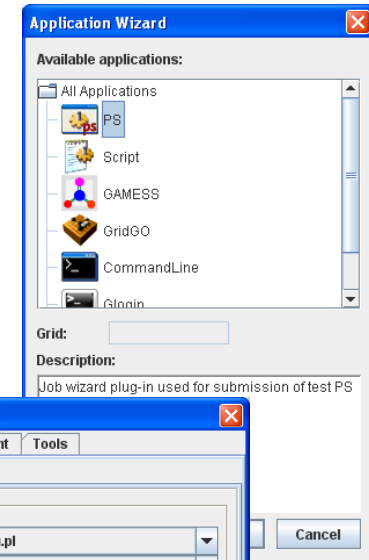
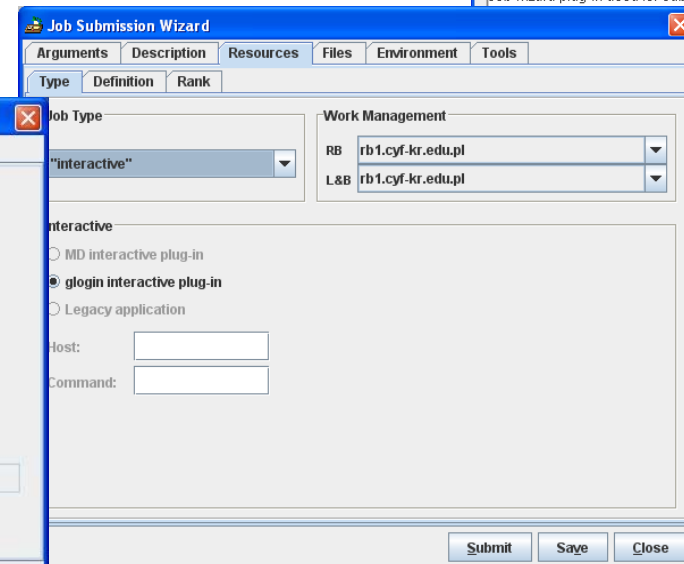
- ❑ Intuitive file manager
- ❑ Easy access to resources
- ❑ Transparent support for various protocols (ftp, gridFTP, LFC, srm 2.2)
- ❑ Built-in file viewers and editors
- ❑ Plug-in based



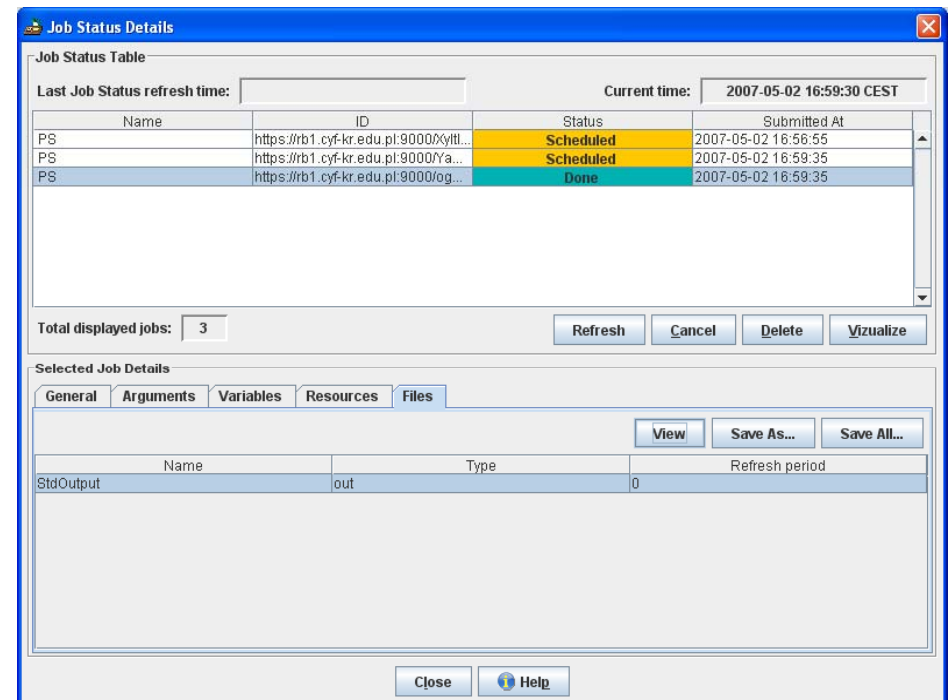
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- ❑ Intuitive and easy defining of jobs
- ❑ Plug-in based:
 - ▶ jar's downloaded on the fly from network
 - ▶ Plugin controlled by VO's



- ❑ Intuitive tracking of status of submitted jobs
- ❑ Plug-in based:
 - ▶ Visualisation (local and remote)
 - ▶ Interaction and real time steering
 - ▶ Visualisation of intermediate results





Supported infrastructures and applications

□ Supported infrastructures:

- ▶ gLite (BalticGrid I/II – EGEE related project),
- ▶ i2g (int.eu.grid – complementary to gLite 3.0)
- ▶ Under development:
 - Unicore
 - ARC
 - GT4



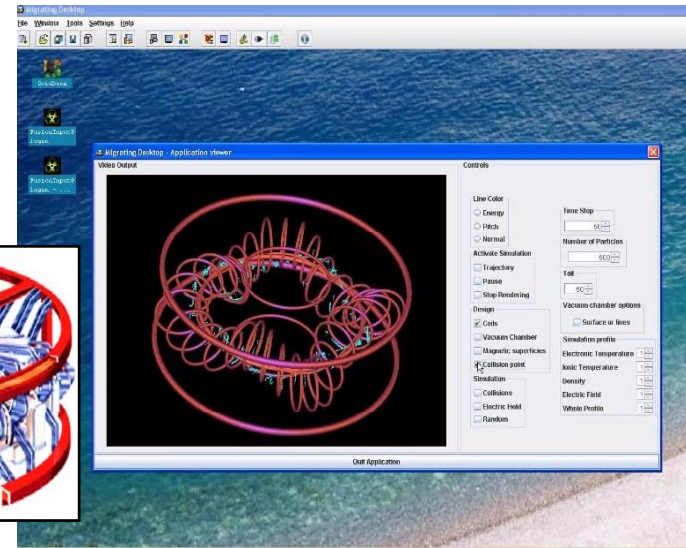
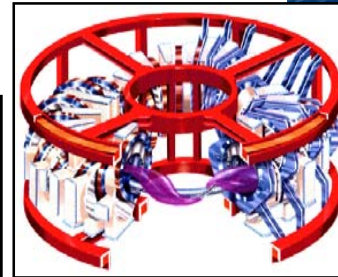
□ Some of supported VOs/applications:

- ▶ Int.eu.grid
 - ifusion: Visualization of Plasma Particles in Fusion Devices,
 - iusct: Ultra Sound Computer Tomography
 - iplanck: Analysis of Cosmic Microwave Background
 - ienvmod: IMS Model Suite
- ▶ BalticGrid
 - Games, SentiKamols , number of other script based applications



Visualization of Plasma Particles in Fusion Devices

- ❑ The application visualizes the behaviour of plasma inside a Fusion device
- ❑ Runs are foreseen as a part of a so called Fusion Virtual Session
- ❑ The plasma is analyzed as a many body system consisting of N particles
- ❑ Example of parallel, interactive application that requires remote visualisation
 - ▶ runned on 30 nodes,
 - ▶ real time steering, simulation and remote visualisation of 300.000 particles)
 - ▶ Interaction with application on MD in laptop with only 100 kb/s
 - ▶ Possibility of allocating more resources in runtime
 - ▶ Changing the simulation physical parameters in runtime

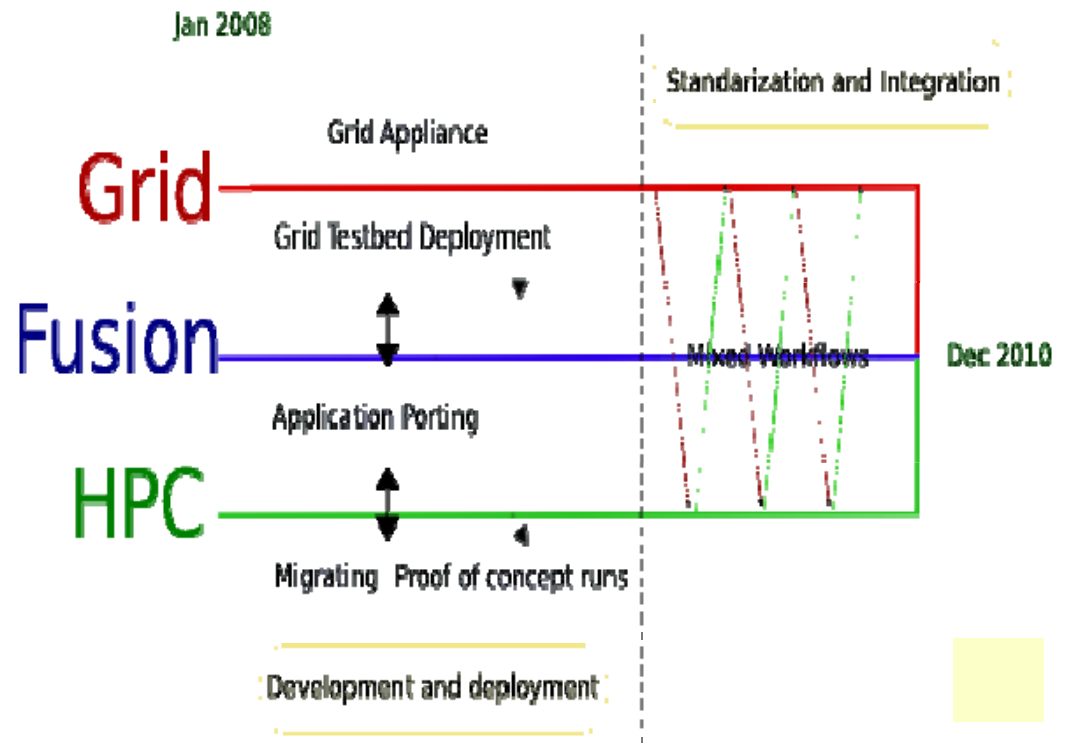


- ❑ the demo of the application running inside Migrating Desktop framework has **won main prize during EGEE User Forum/OGF 20 in Manchester**

FP7 EUFORIA Use case(1)

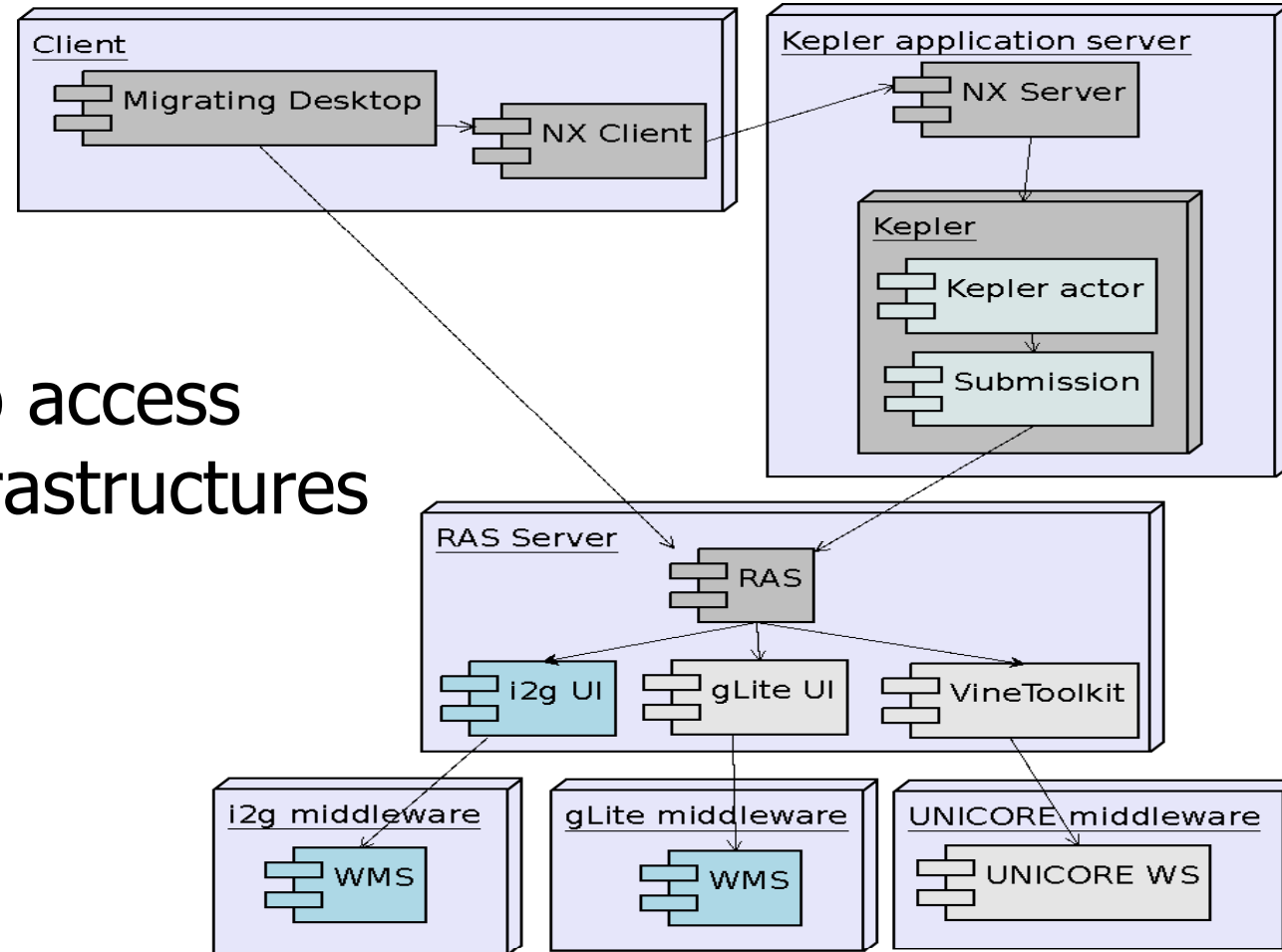
The objective is to schedule jobs on the GRID and HPC infrastructures together with jobs running on other computing facilities.

- launch and control jobs in a transparent manner for the users.
- data communication: data transfers and visualizations are required at run time and to access the experimental and simulated data.
- middleware connectivity for Kepler Workflow (java Library for gLite, HPC)
- scheduler notification tools



FP7 EUFORIA Use case(1)

- One point to access different infrastructures





Developer's perspective

- ❑ Migrating Desktop – based on standardized plug-in mechanism
 - ▶ Possibility of adding application, visualisation, job pre-post processing or any other java plug-ins
- ❑ Roaming Access Server – based on web services
 - ▶ Possibility of supporting other infrastructures
 - ▶ Possibility of interaction not only from MD client
- ❑ Developer Zone:
 - ▶ <http://desktop.psnc.pl/>
 - ▶ Developers guides, examples, source code, etc.
- ❑ It is Open Source – it is possible to take the source code and improve things 😊





MD Plug-in Architecture

□ Motivations

- ▶ To enable easy extension of the framework
- ▶ To **standardize** integration with „third party“ modules
- ▶ To integrate Migrating Desktop with applications
- ▶ To give to integrated modules easy access to resources

□ Migrating Desktop plug-ins

- ▶ Set of OSGi bundles with well-defined interface, described by XML file and loaded „on demand“ from a network





Product timeline

- ❑ **2002:** Start of development within 5th Framework EU CrossGrid Project and national Progress project (Proof of concept)
- ❑ **2005:** Chosen as a **key component** of the EU CrossGrid project
- ❑ **Nov 2005:** Start of **deployment** in 6th Framework EU-BalticGrid project
- ❑ **May 2006:** Continuation of **development** in 6th Framework EU int.eu.grid project
- ❑ **May 2007:** the demo "**Visualization of Plasma Particles in Fusion Devices**" that was running inside **Migrating Desktop** framework has **won main prize during EGEE User Forum/OGF 20 in Manchester.**
- ❑ **2008:** start further developments and deployments in FP7 infrastructure projects:
 - ▶ **Euforia project** (development, integration with Kepler/Unicore)
 - ▶ **BalticGrid-II project** (deployment)
 - ▶ Partially to be used as a deployed service within **DORII**
- ❑ **September 2008:** Added to RESPECT programme



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Future Plans

□ Short terms development plans

- ▶ Integration with Kepler workflow system
 - Support for parametric jobs
- ▶ Integration and support of
 - Unicore (using VINE Toolkit)
 - ARC
 - GT4 (using VINE Toolkit)
- ▶ Integration with Gridway
- ▶ Support and development of feature requests coming from applications/users and NGI's





Additional information

- ❑ **Product homepage**
 - ▶ <http://desktop.psnc.pl>
- ❑ **Int.eu.grid**
 - ▶ <http://www.interactive-grid.eu>
- ❑ **BalticGrid**
 - ▶ <http://www.balticgrid.eu>
- ❑ **EUFORIA**
 - ▶ <http://www.euforia-project.org>
- ❑ **PSNC**
 - ▶ <http://www.man.poznan.pl>
- ❑ **CVS Repository – source code**
 - ▶ <http://ras.man.poznan.pl/cgi-bin/viewcvs.cgi>
- ❑ **The OSGi Alliance**
 - ▶ <http://www.osgi.org>

