



Enabling Grids for E-science

GENIUS and EnginFrame: A successful EGEE technology transfer

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NICE srl*

www.nice-italy.com

*The EGEE Industry Day Conference
Parigi, LPNHE- 27.04.2006*

www.eu-egee.org



- NICE**
- Grids & Grid Portals
- Cases Histories
- Future Trends



- **Expertise in Grid deployment**
 - European company with 10 years experience with enterprise Grid solutions
 - Comprehensive professional service offering for commercial and EGEE middleware

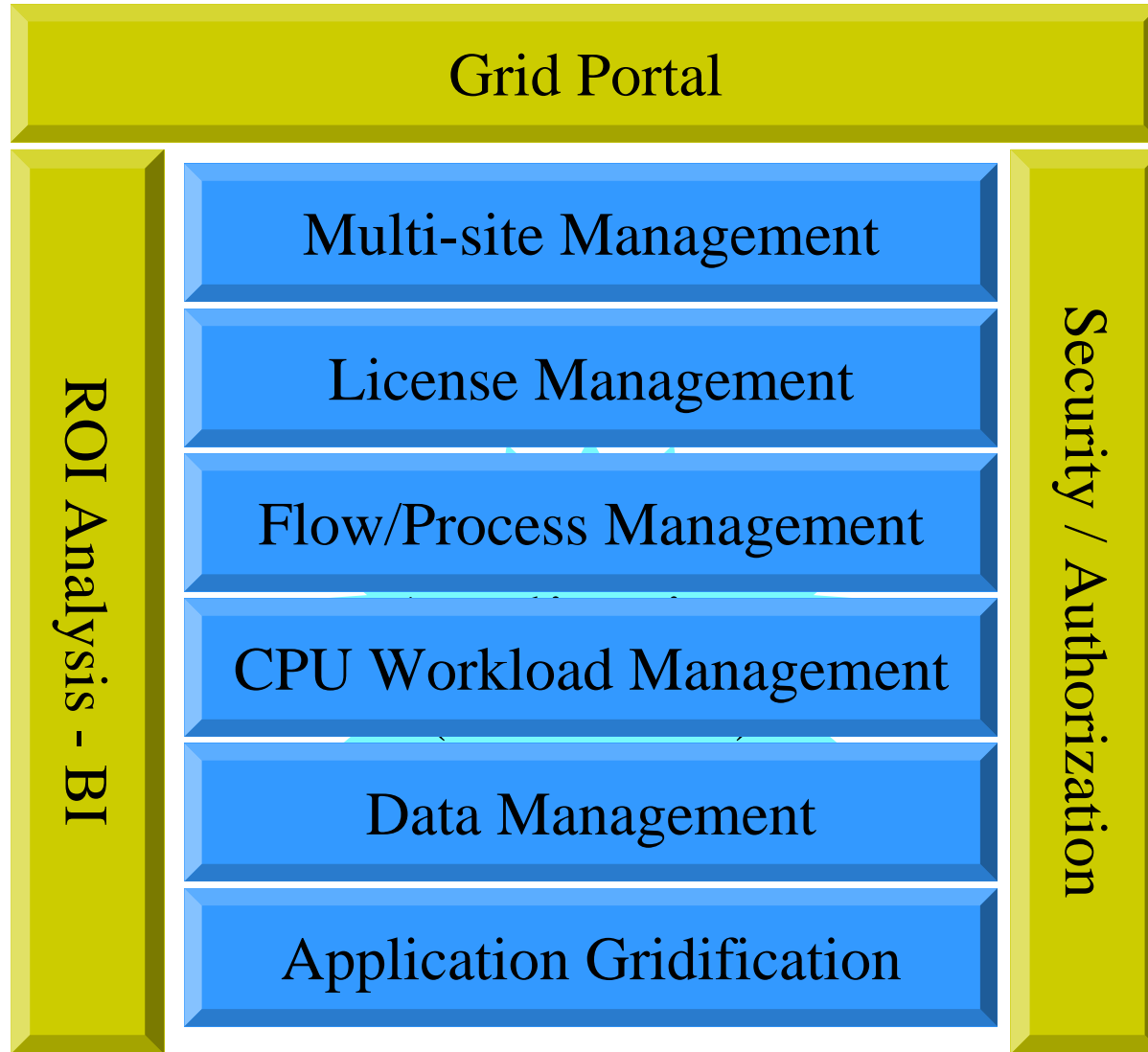
- **Core business: the Global Grid Gateway**
 - **EnginFrame & GENIUS** Grid Portal product line
 - VAR channels with worldwide coverage for implementation and support (incl. industry leader Platform Computing)

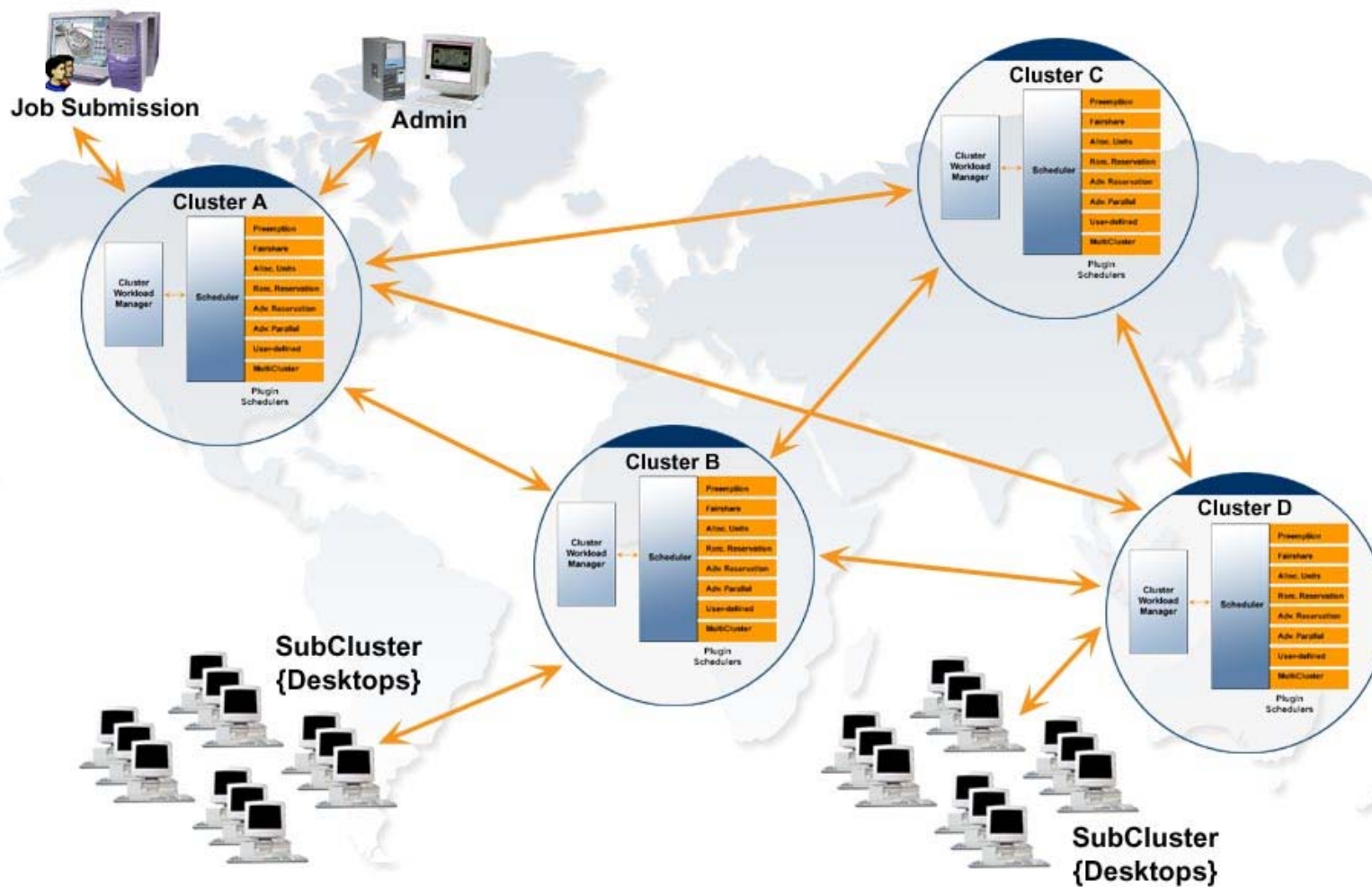
- **Other relevant competencies**
 - Server-based computing

- **Mechanical**
 - Ferrari, Audi, BMW, FIAT Auto, Delphi, Elasis, Magneti Marelli, P+Z, Swagelok, Toyota, TRW
- **Manufacturing**
 - Bridgestone, Procter & Gamble, Galileo Avionica
- **Oil&Gas**
 - Slavneft, Schlumberger, TOTAL, VNIIGaz
- **Electronics**
 - STMicroelectronics, Accent, SensorDynamics, Motorola
- **Biotech**
 - ENEA, EGEE LS community
- **Telecom**
 - Telecom Italia
- **Research**
 - INFN, ASSC, CCLRC, CERN, CILEA, CINECA, CNR, CNRS/IN2P3, ENEA, FzU, ICI, IFAE, ITEP, JSC G.G.M., KU Leuven, SSC-Russia, SDSC
- **Education**
 - Dresda University, Ferrara University, ITU, Messina University, Politecnico of Milan, Technische Universität Dresden, Trinity College Dublin, Salerno University, S-PACI, IHEP Cina,

- NICE
- Grids & Grid Portals**
- Cases Histories
- Future Trends

- ❑ Grid middleware
 - ✓ **API, Web Services (WSRF, WS-I, ...)**
- ❑ OS
 - ✓ **Heterogeneous**
 - ✓ **Virtualization**
- ❑ Hardware
 - ✓ **Heterogeneous**
 - ✓ **Supercomputers, clusters, workstations**
- ❑ Networks
 - ✓ **LAN, WAN, high speed networks, firewalls**
- ❑ Schedulers
 - ✓ **Resource sharing policies, SLA**
- ❑ Modeling, simulation, data analysis, algorithms
 - ✓ **Legacy, grid-enabled**
 - ✓ **Batch, interactive**
 - ✓ **Commercial, open source**
 - ✓ **Flows**
- ❑ Data
 - ✓ **Files, databases**
- ❑ Security
 - ✓ **AAA**
 - ✓ **IP protection**
- ❑ People
 - ✓ **Collaboration, distributed teams**
 - ✓ **Project-driven allocation, reservation**
 - ✓ **Costs sharing**



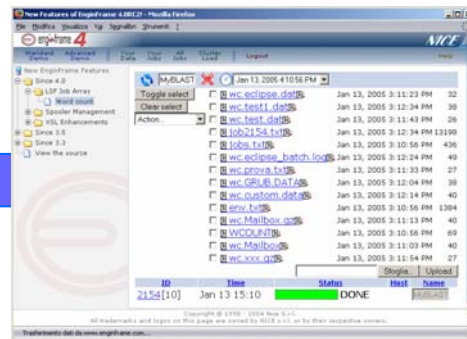


The Grid Portal vision



Clients

Standard
Web
Technology

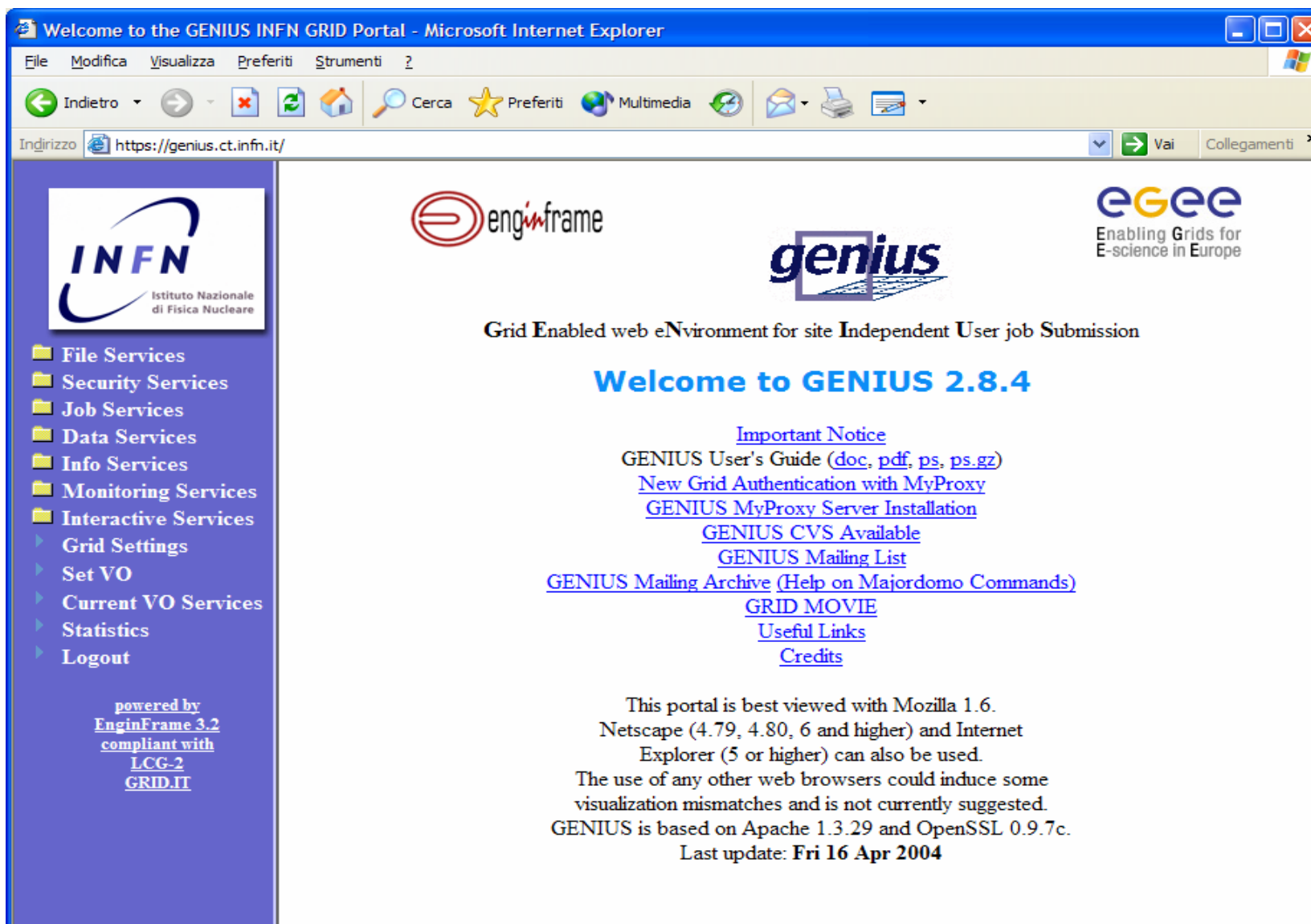


Interactive
Apps

Licenses
& Data

Grid /
Compute
Farm






Welcome to the GENIUS INFN GRID Portal - Microsoft Internet Explorer


File Modifica Visualizza Preferiti Strumenti ?


Indietro - - - - - Cerca Preferiti Multimedia - - - - - Vai Collegamenti >>


Indirizzo <https://genius.ct.infn.it/>



INFN
Istituto Nazionale
di Fisica Nucleare







EGEE
Enabling Grids for
E-science in Europe

Grid Enabled web eNvironment for site Independent User job Submission

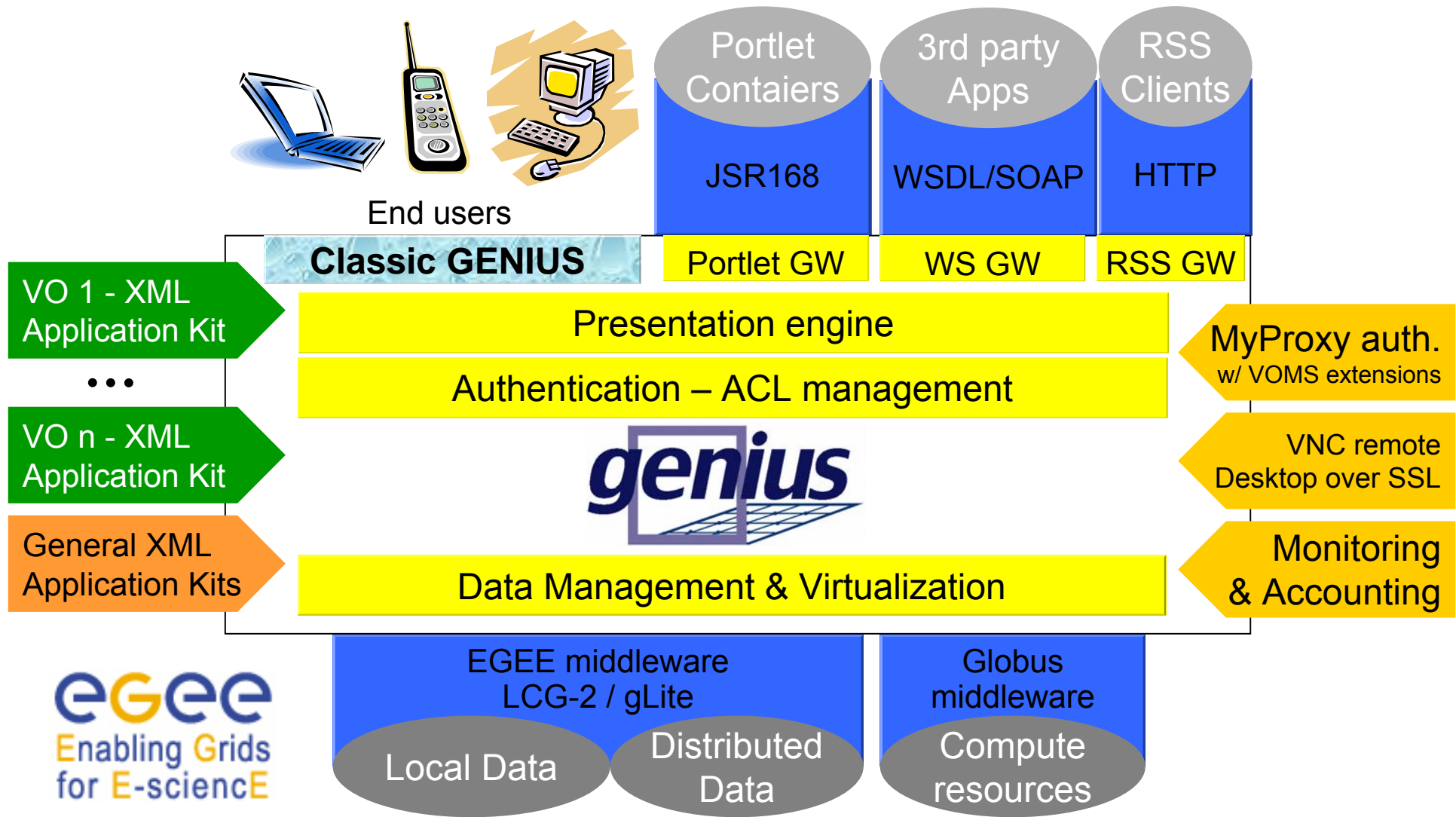
Welcome to GENIUS 2.8.4

[Important Notice](#)
[GENIUS User's Guide \(doc, pdf, ps, ps.gz\)](#)
[New Grid Authentication with MyProxy](#)
[GENIUS MyProxy Server Installation](#)
[GENIUS CVS Available](#)
[GENIUS Mailing List](#)
[GENIUS Mailing Archive \(Help on Majordomo Commands\)](#)
[GRID MOVIE](#)
[Useful Links](#)
[Credits](#)

This portal is best viewed with Mozilla 1.6.
Netscape (4.79, 4.80, 6 and higher) and Internet Explorer (5 or higher) can also be used.
The use of any other web browsers could induce some visualization mismatches and is not currently suggested.
GENIUS is based on Apache 1.3.29 and OpenSSL 0.9.7c.
Last update: **Fri 16 Apr 2004**

- File Services
- Security Services
- Job Services
- Data Services
- Info Services
- Monitoring Services
- Interactive Services
- Grid Settings
- Set VO
- Current VO Services
- Statistics
- Logout

powered by
[EnginFrame 3.2](#)
compliant with
[LCG-2](#)
[GRID.II](#)





GENIUSphere: Data - Navigate

Enabling Grids for E-scienceE

Welcome to GENIUSphere Portal - Mozilla

Grid Enabled web environment for site Independent User job Submission

Logout
Welcome, NICE srl

Welcome | EnginFrame Portlet

Preferences | Files | Security | Accounting | Jobs | Data

Publish a File

Home

Publish a File

With this service you can publish local data on the Catalog of your Virtual Organization.

Choose File/Directory

Choose Remote File/Directory

Base Directory on Catalog /

Navigate Catalog

With this service you can navigate the Catalog of your Virtual Organization.

Selected files on Catalog

```
/Alberto/DAG.jdl  
/Alberto/hostname.jdl
```

Manage Dir on Catalog

With this service you can create or remove a directory on the Catalog of your Virtual Organization.

As mandatory requirement, the directory to remove must be empty.

Select the base dir / The default value is /

Rename on Catalog

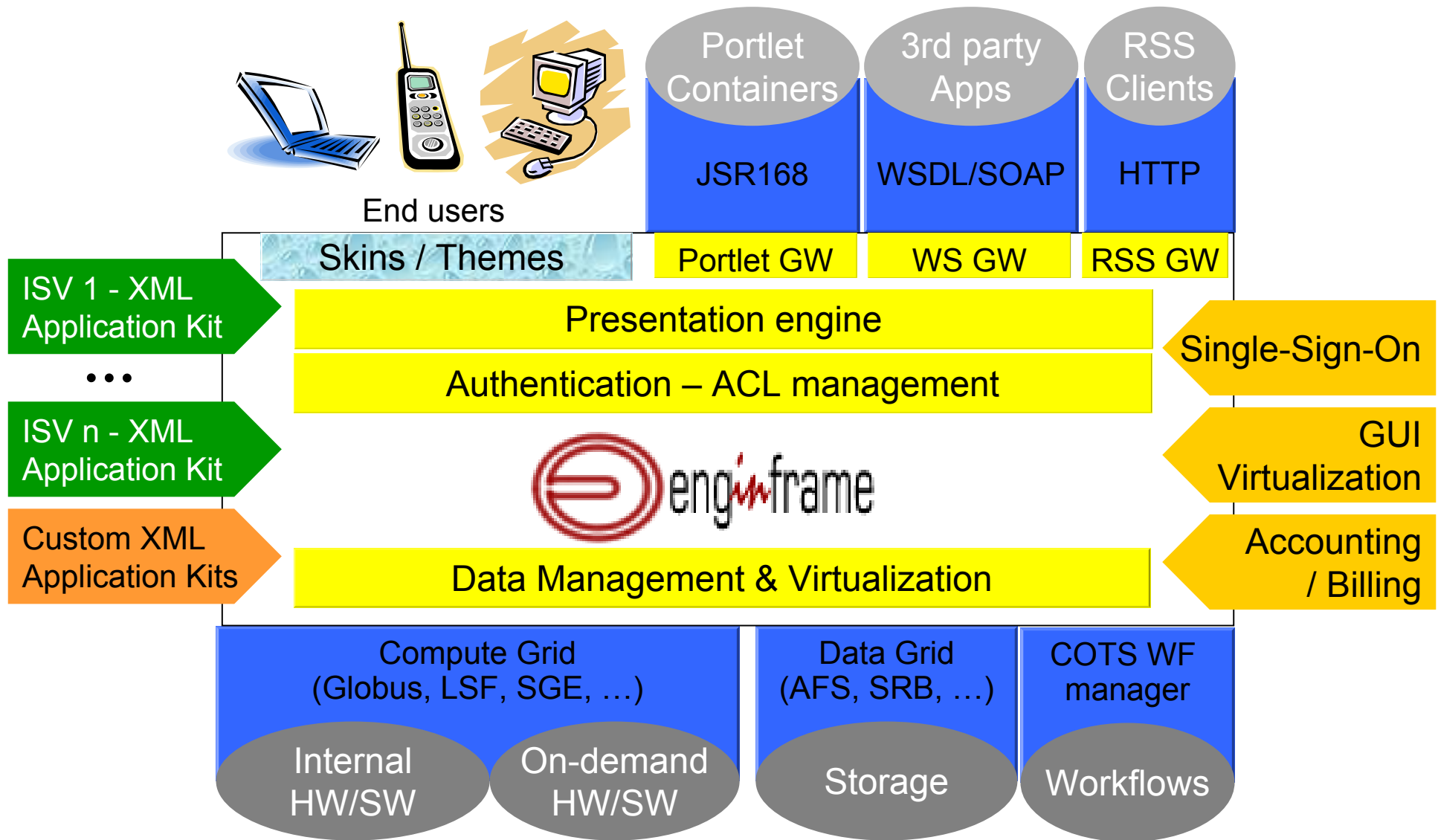
With this service you can rename a file or a directory on the Catalog of your Virtual Organization.

Select the Source file/dir name /

Destination file/dir name The end node only

Taskbar: m, [icons], cZ, [icons]





- NICE
- Grids & Grid Portals
- Cases Histories**
- Future Trends



Total Reservoir Portal - Mozilla Firefox

File Modifica Visualizza Vai Segnalibri Strumenti ?

http://www.enginframe.com/enginframe/reservoir/com.total.reservoir.xml?_uri=/com.total.reservoir/ec_d

La Repubblica.it » Ho... NICE - Projects - We... Euro to U.S. Dollar Ex... Bugzilla Main Page CmsAdmin < Admin <...
 Repubblica.it » cronaca » B Intercezzazioni, ... LinkedIn: Find People: Search Results

TOTAL HOME MY JOBS* ALL JOBS* LICENSES* QUEUES* LOGOUT efadm

Reservoir services
 ECLIPSE Affiliates
 ECLIPSE Advanced
 ECLIPSE Plan
 Admin
 Help

Classic studies
 Step 2 of 2.

Input data files:
 /data/ec/test128/plan3.DATA
 /data/ec/test128/plan6.DATA
 /data/ec/test128/plan9.DATA
 /data/ec/test128/plan15.DATA
 /data/ec/test128/plan16.DATA

Required n. CPU: 1
 Simulator: eclipse
 Version: 2004a_1 (default)
 Start tonight
 Start next weekend
 Fast execution

Completato

Schlumberger - Mozilla Firefox

File Modifica Visualizza Vai Segnalibri Strumenti ?

http://www.enginframe.com/enginframe/slb/com.slb.services.xml?_service=eclipse&_fol

spaci hpc portal

Schlumberger

home | my data | my jobs | all jobs | cluster info | logout demo Language...

Schlumberger Services
 ECLIPSE
 ECLIPSE Wizard

ECLIPSE
 Here is the ECLIPSE simulation service.

Input data file: Select..

Number of processors: 1

Simulator: Parallel_Eclipse

Version: 2005a

Execution host type: ANY

Required memory: MBytes

Maximum runtime: [hours:]minutes

Interconnect type: Gigabit

Computing queue: normal (Active, 0 jobs, 0 running)

Exclusive Job
 Use local configuration

Submit

Completato



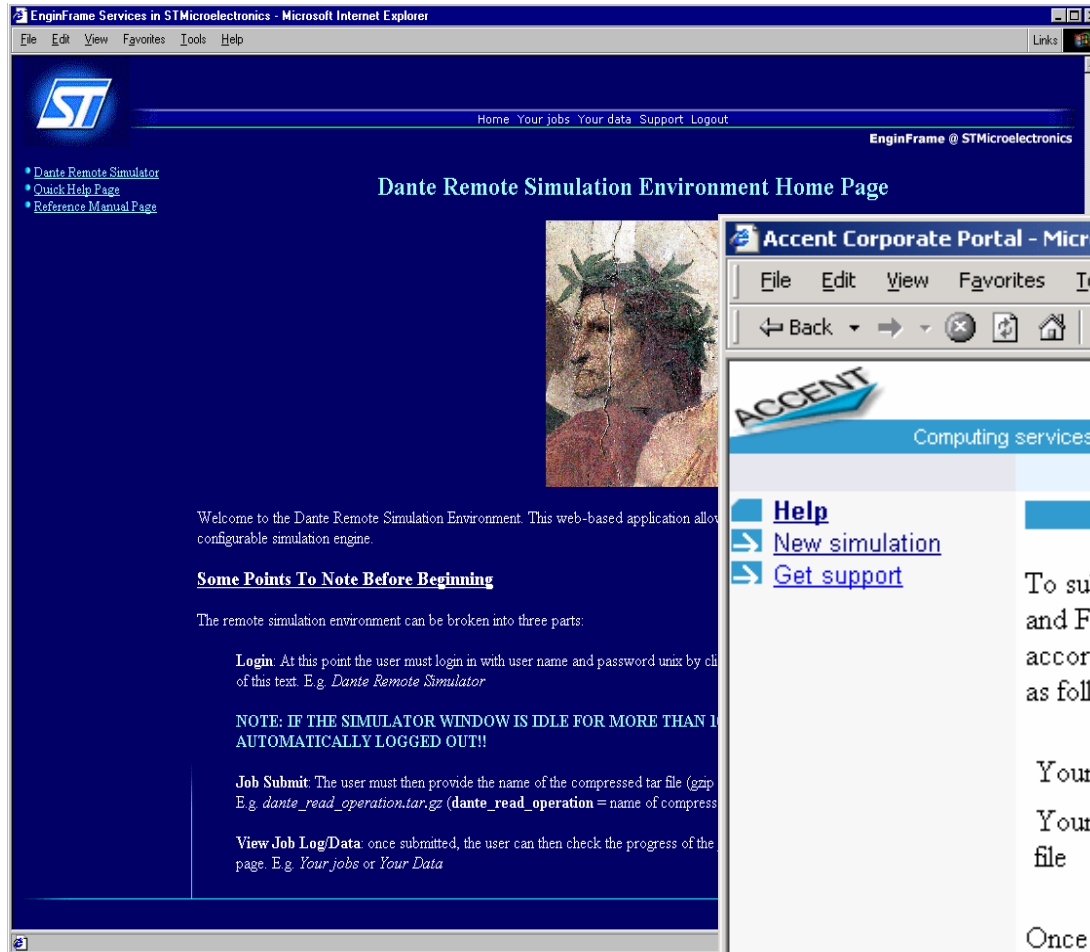


MCAE portals in Automotive

Enabling Grids for E-science

The image displays a web portal interface for CAE services, overlaid on a background of a "Platform" window. The main interface is titled "Fiat CAE Portal" and features a sidebar with "Service offerings" including [LSDYNA](#), [NASTRAN](#), [ABAQUS](#), [ADAMS](#), [POWERFLOW](#), [CFDPP](#), [MCFD](#), [PAMCRASH](#), [AKUSMOD](#), and [Data Host](#). The main content area shows a "Data Manager" section for "LSDYNA" with fields for "JOB DESCRIPTION:", "INPUT FILE:", "QUEUE SELECTION:", "N. CPU (MAX. 8):", "MEMORY:", "VERSION:", "RESTART FILE:", and "ADDITIONAL OPTIONS:", along with a "SUBMIT JOB" button. A "powered by" logo for EngineFrame is visible at the bottom of the sidebar.

Overlaid on the right is a Microsoft Internet Explorer browser window displaying the "Audi World Site - News" page. The page features the Audi logo and the text "Audi Corporate ASP Powered by EngineFrame + FlowGuide". Below this, there is a section titled "AudiPamcrash_preprocessed" with a list of links: [AudiPamcrash_preprocessed](#), [audipam](#), [Dyna3D_new](#), [AudiPamcrash](#), [simpleInterface](#), and [anotherInterface](#). The page also includes a form for "LSF hosts" with a "Select..." button, and fields for "Projektname", "Berechnungsfall", and "Input Deck" with a "Select..." button. There are three checkboxes: "Auslieferung in Eingabeverzeichnis?", "Restartfiles ins Eingabeverzeichnis?", and "Auslieferung ins Archiv?". The "Pamcrash Version" is set to "98". The browser's status bar at the bottom indicates "Operazione completata. Errori nella visualizzazione della pagina."



EnginFrame Services in STMicroelectronics - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Home Your jobs Your data Support Logout

EnginFrame @ STMicroelectronics

Dante Remote Simulation Environment Home Page

- Dante Remote Simulator
- Quick Help Page
- Reference Manual Page

Welcome to the Dante Remote Simulation Environment. This web-based application allows you to submit and manage your simulations using a configurable simulation engine.

Some Points To Note Before Beginning

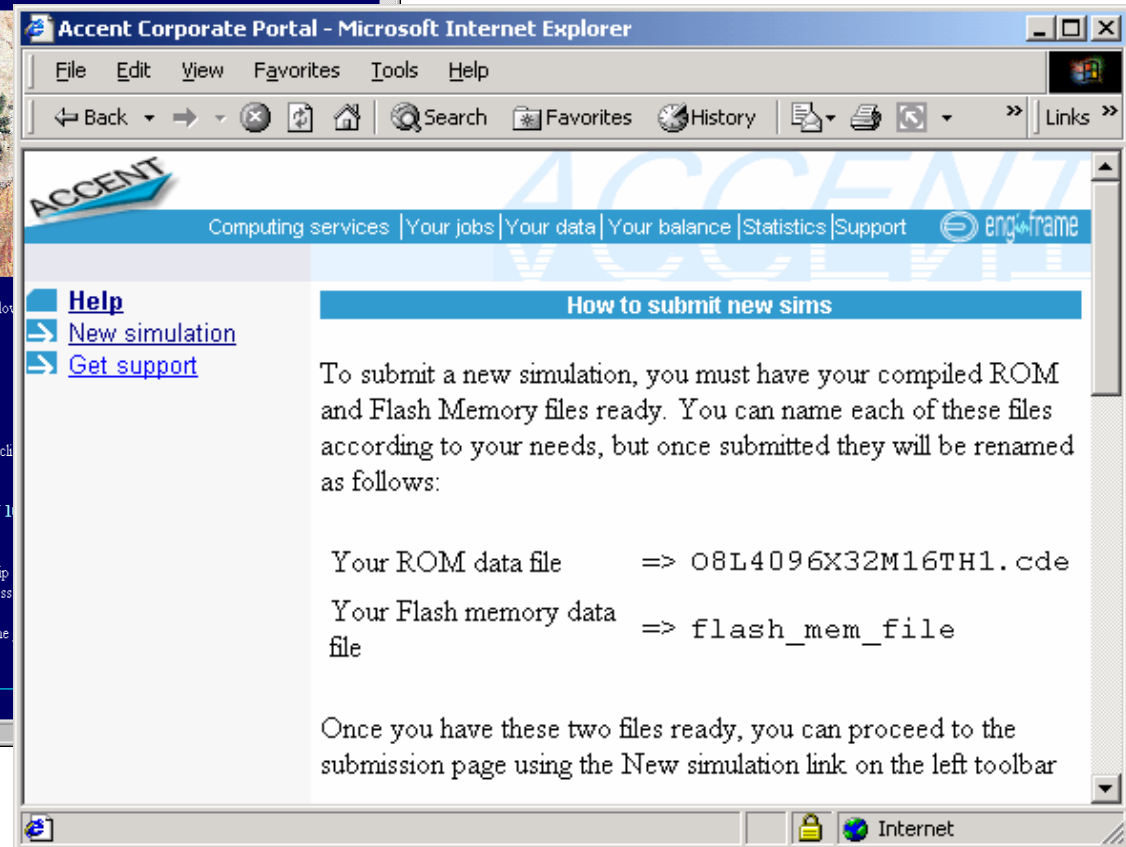
The remote simulation environment can be broken into three parts:

Login: At this point the user must login in with user name and password using the user interface of this text. E.g. *Dante Remote Simulator*

NOTE: IF THE SIMULATOR WINDOW IS IDLE FOR MORE THAN 15 MINUTES, THE USER WILL BE AUTOMATICALLY LOGGED OUT!!

Job Submit: The user must then provide the name of the compressed tar file (gzip or tar). E.g. *dante_read_operation.tar.gz* (*dante_read_operation* = name of compressed file)

View Job Log/Data: once submitted, the user can then check the progress of the simulation on the page. E.g. *Your jobs or Your Data*



Accent Corporate Portal - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print Links

Computing services | Your jobs | Your data | Your balance | Statistics | Support

Help

- New simulation
- Get support

How to submit new sims

To submit a new simulation, you must have your compiled ROM and Flash Memory files ready. You can name each of these files according to your needs, but once submitted they will be renamed as follows:

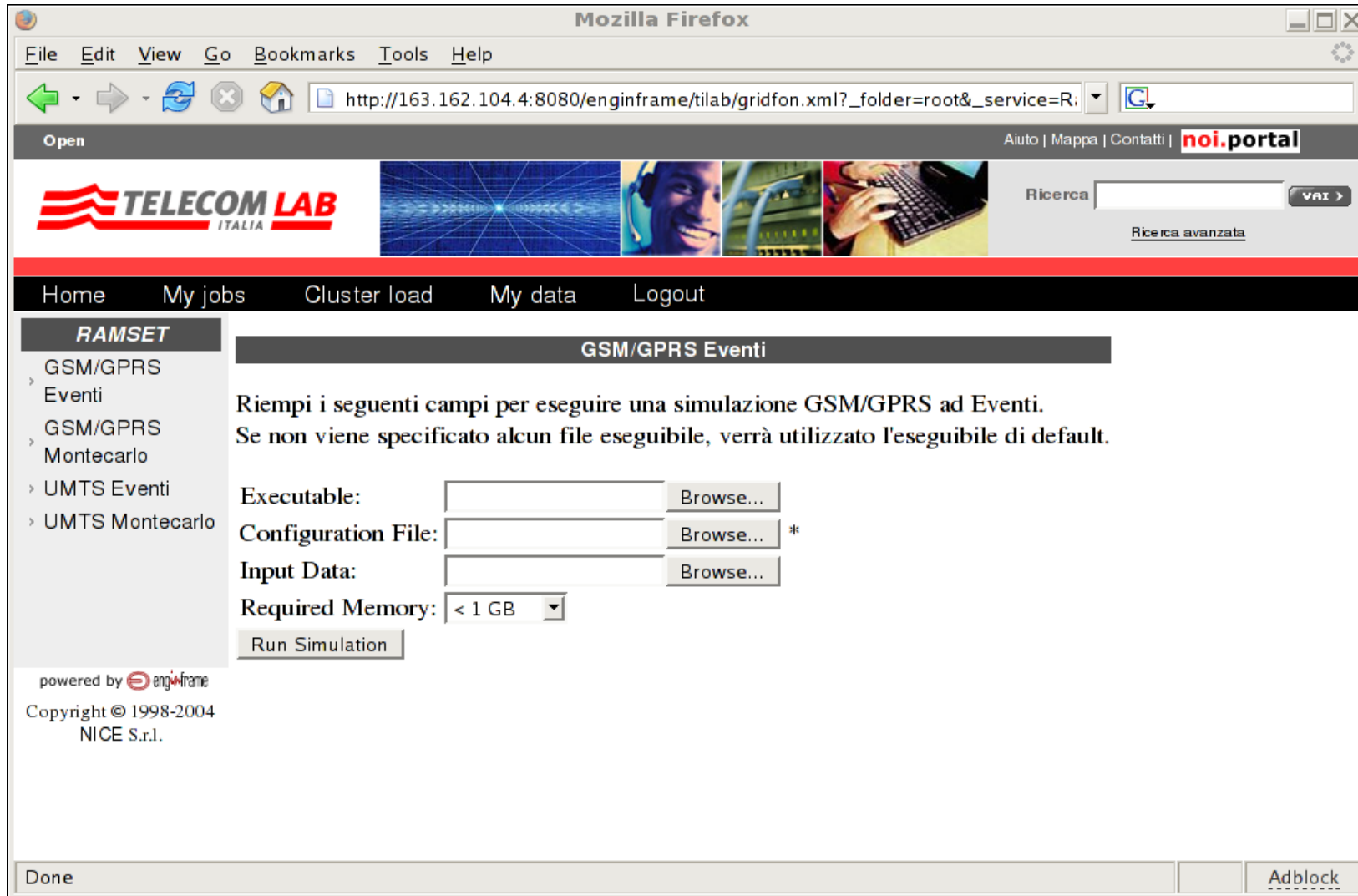
Your ROM data file => 08L4096X32M16TH1.cde

Your Flash memory data file => flash_mem_file

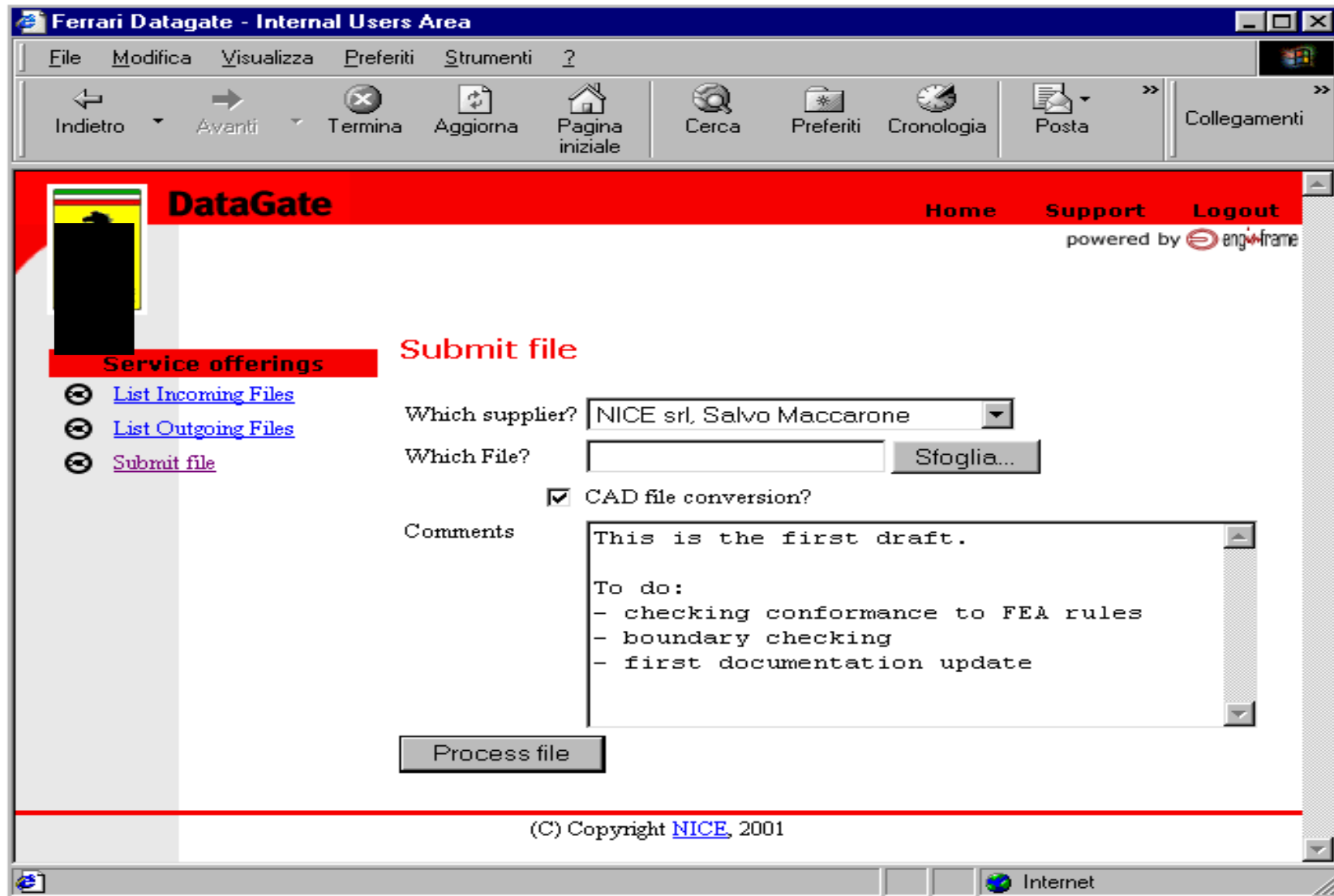
Once you have these two files ready, you can proceed to the submission page using the New simulation link on the left toolbar

Black-box for EDA simulation





The screenshot shows a Mozilla Firefox browser window displaying the Telecom Lab Italia Grid Portal. The address bar shows the URL: `http://163.162.104.4:8080/enginframe/tilab/gridfon.xml?_folder=root&_service=R`. The page features the Telecom Lab Italia logo, navigation links (Home, My jobs, Cluster load, My data, Logout), and a search bar. The main content area is titled "GSM/GPRS Eventi" and contains a form for running a simulation. The form includes fields for "Executable:", "Configuration File:", and "Input Data:", each with a "Browse..." button. The "Required Memory:" field is set to "< 1 GB". A "Run Simulation" button is located below the form. The footer of the page includes the text "powered by enginframe", "Copyright © 1998-2004 NICE S.r.l.", and an "Adblock" button.



The screenshot shows a web browser window titled "Ferrari Datagate - Internal Users Area". The browser's address bar is empty, and the menu bar includes "File", "Modifica", "Visualizza", "Preferiti", "Strumenti", and "?". The toolbar contains navigation buttons: "Indietro", "Avanti", "Termina", "Aggiorna", "Pagina iniziale", "Cerca", "Preferiti", "Cronologia", "Posta", and "Collegamenti".

The web page has a red header with the "DataGate" logo on the left and navigation links "Home", "Support", and "Logout" on the right. Below the navigation links, it says "powered by eng4frame".

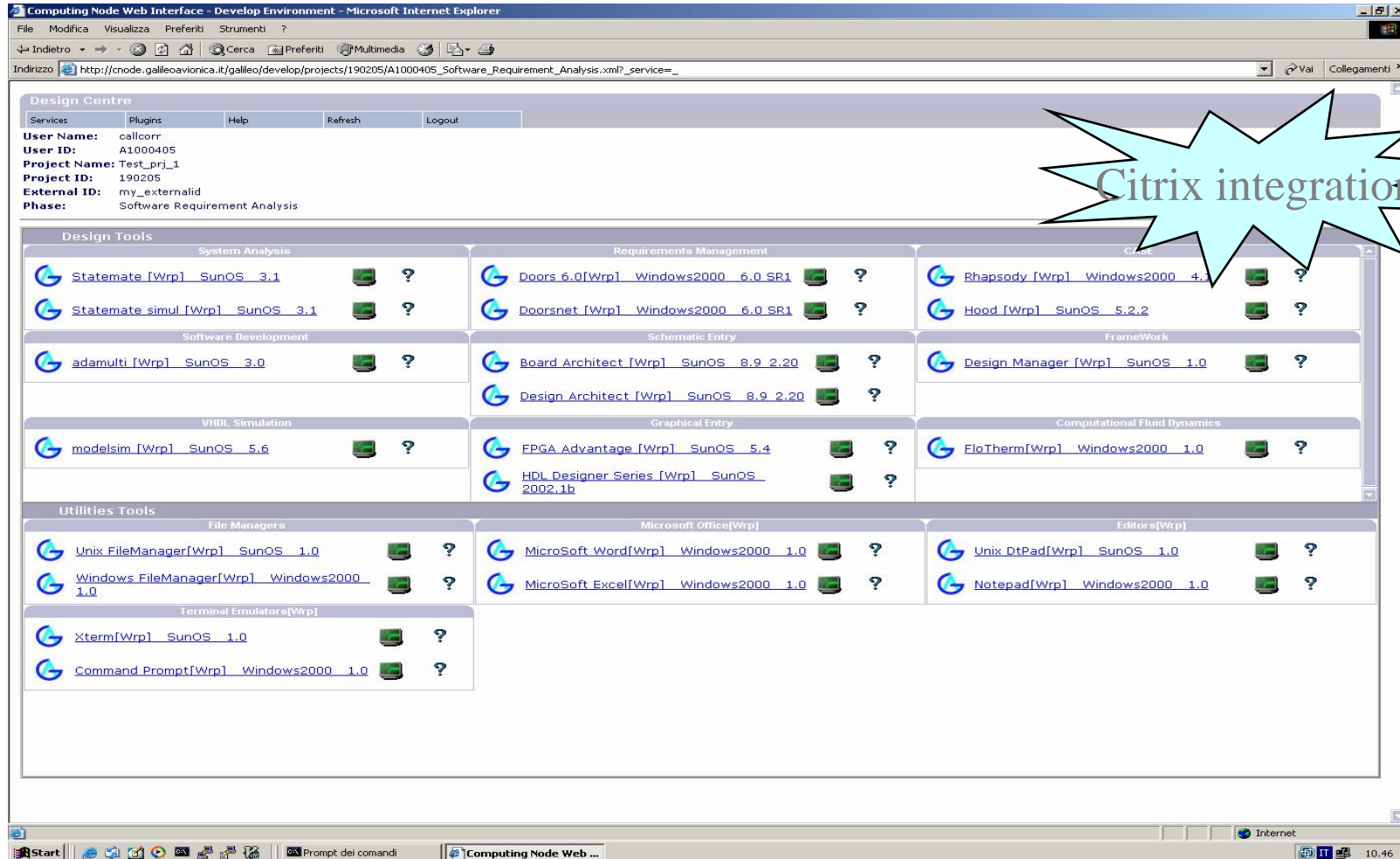
The main content area is titled "Submit file" in red. On the left, there is a sidebar with a "Service offerings" section containing three links: "List Incoming Files", "List Outgoing Files", and "Submit file".

The "Submit file" form includes the following fields and controls:

- "Which supplier?" dropdown menu with "NICE srl, Salvo Maccarone" selected.
- "Which File?" text input field with an "Sfoggia..." button.
- A checked checkbox for "CAD file conversion?".
- "Comments" text area containing:
This is the first draft.

To do:
- checking conformance to FEA rules
- boundary checking
- first documentation update
- "Process file" button.

At the bottom of the page, there is a copyright notice: "(C) Copyright NICE, 2001". The browser's status bar at the bottom shows "Internet".



Centralized eDesign Services





Enabling Grids for E-science

HPC demo-center & ASP

http://www.gridage.com - Gridage :: HOME - Microsoft Internet Explorer

File Modifica Visualizza Preferiti Strumenti ?

Indietro Cerca Preferiti

GRID AGE Login Password Go

- HOME
- GRID AGE
- TRY GRID ONLINE
- PARTNERS
- SOLUTIONS
- NEWS & EVENTS
- CONTACTS

News

- MSC.Actran™ now on GridAge for efficient vibroacoustics simulation
- Intel tops off 64-bit server platform portfolio
- Intel Silicon Breakthrough Speeds Server, Network Responsiveness
- Newly formed Intel® Software Network creates 'one-stop shop' for ...

What is Grid?

Tracing its roots into distributed computing architectures, **Grid computing** enables geographically dispersed systems to share and virtualize their applications, data and computational resources.

More than just a vision, Grid computing delivers measurable business value, particularly among organizations with compute or data-intensive demands. With Grid Computing, companies can balance the supply and demand of computing cycles and resources by providing users with a single, transparent, aggregated source of computing power. Ultimately, it provides the ability to lower the total cost of computing by providing on-demand, reliable and transparent access to available computer resources...

Read more: [About Grid](#)

Why GridAge?

The **GridAge** initiative - born from the collaboration between HP, Intel, MSC.Software and Nice - is becoming the reference site for those people that are involved with technical-scientific computing both in educational and industrial departments.

GridAge offers information on the most important events that concern the world of the *High Performance Computing (HPC)* and give the real opportunity to be updated on the evolution of the solutions of this specific sector...

Read more: [Why GridAge](#)

Search

SysAdm Powered by adMin

MSC SOFTWARE | hp | NICE | intel | Print

www.mscsoftware.com | www.hp.com | www.nice-italy.com | www.intel.com

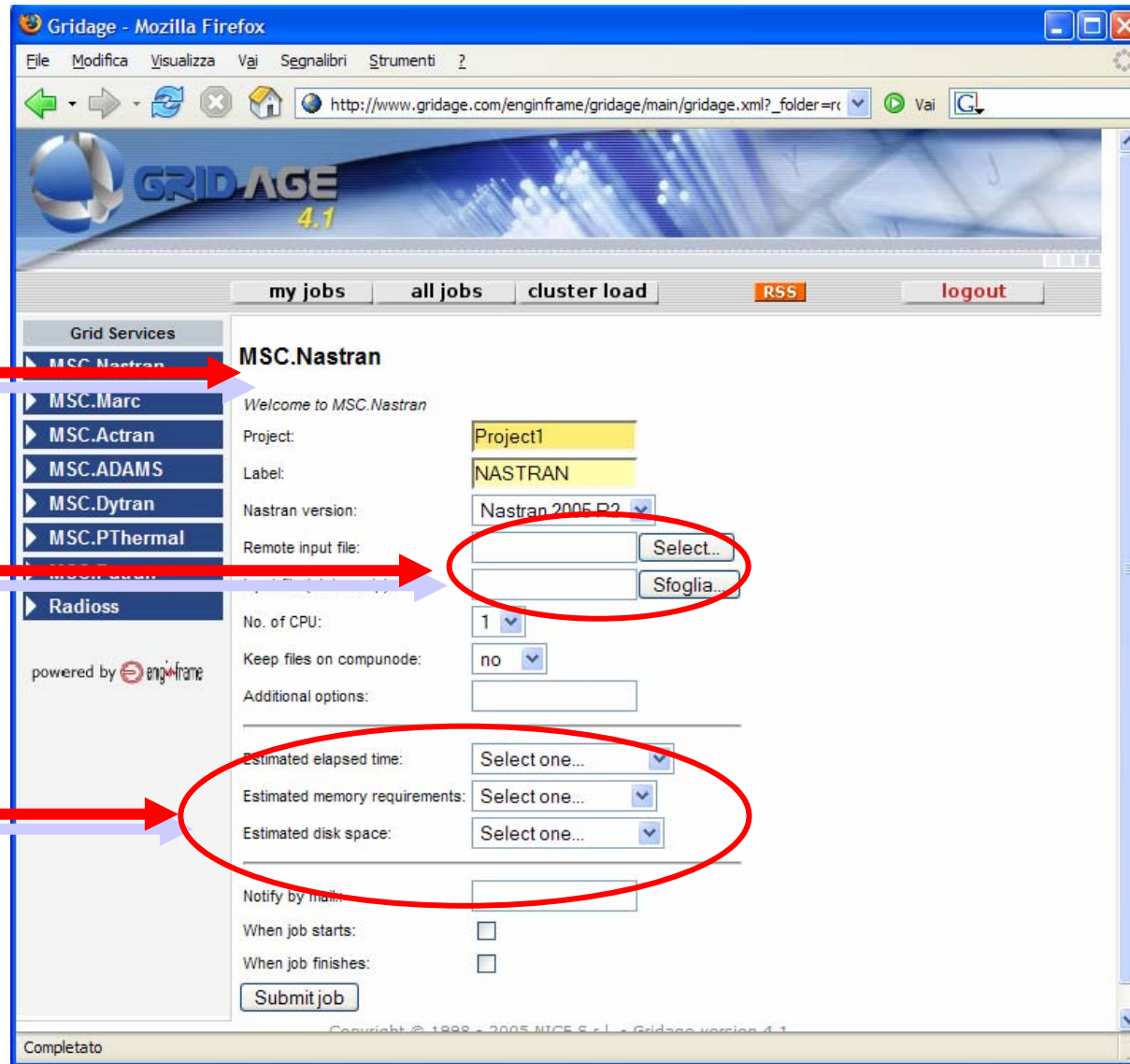
Internet

<http://www.GridAge.com>

*User friendly,
Application-oriented
Job submission*

*Flexible and efficient
Input file management*

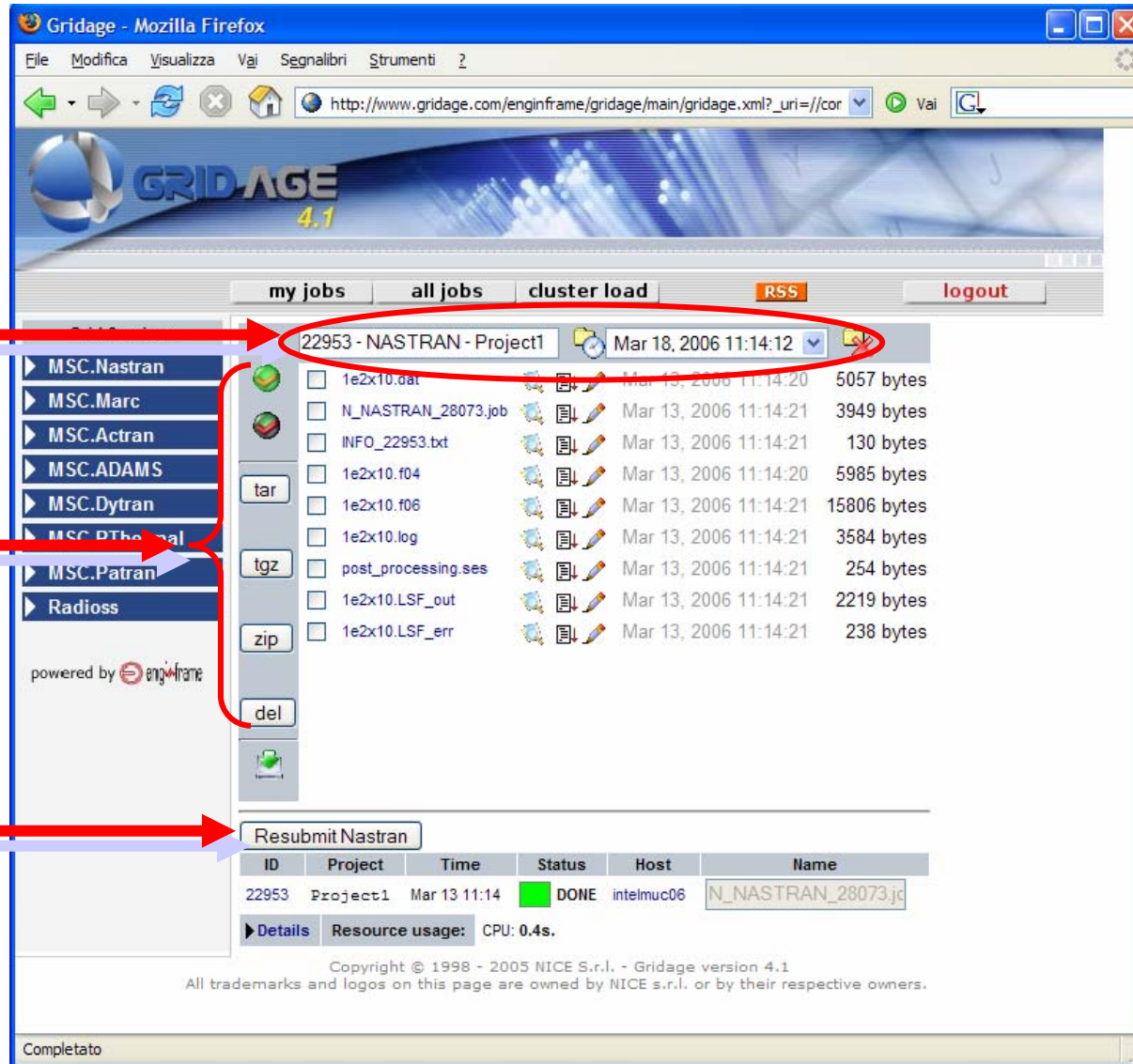
*Hide complexity of
Underlying scheduler*



Data lifecycle management

Comprehensive output File manipulation (view, edit, delete, zip, ...)

Follow-up actions support



The screenshot shows the Gridage 4.1 web interface in Mozilla Firefox. The browser address bar shows the URL: `http://www.gridage.com/engineframe/gridage/main/gridage.xml?_uri=//cor`. The page title is "Gridage - Mozilla Firefox".

The interface has a navigation bar with tabs: "my jobs", "all jobs", "cluster load", "RSS", and "logout". The "my jobs" tab is selected.

The main content area displays a list of jobs. The job "22953 - NASTRAN - Project1" is highlighted with a red circle. Below the job name, there is a list of files:

File Name	Size	Date
1e2x10.dat	5057 bytes	Mar 13, 2006 11:14:20
N_NASTRAN_28073.job	3949 bytes	Mar 13, 2006 11:14:21
INFO_22953.txt	130 bytes	Mar 13, 2006 11:14:21
1e2x10.f04	5985 bytes	Mar 13, 2006 11:14:20
1e2x10.f06	15806 bytes	Mar 13, 2006 11:14:21
1e2x10.log	3584 bytes	Mar 13, 2006 11:14:21
post_processing.ses	254 bytes	Mar 13, 2006 11:14:21
1e2x10.LSF_out	2219 bytes	Mar 13, 2006 11:14:21
1e2x10.LSF_err	238 bytes	Mar 13, 2006 11:14:21

On the left side of the file list, there are buttons for file manipulation: "tar", "tgz", "zip", and "del".

Below the file list, there is a "Resubmit Nastran" button. Below that, there is a table showing job details:

ID	Project	Time	Status	Host	Name
22953	Project1	Mar 13 11:14	DONE	intelmuc06	N_NASTRAN_28073.jc

Below the table, there is a "Details" link and "Resource usage: CPU: 0.4s.".

At the bottom of the page, there is a copyright notice: "Copyright © 1998 - 2005 NICE S.r.l. - Gridage version 4.1. All trademarks and logos on this page are owned by NICE s.r.l. or by their respective owners." and the word "Completato" in the footer.



EnginFrame Mechanical Design Automation demo site! - Microsoft Internet Explorer

enginframe MECHANICAL GRID PORTAL

My jobs | My data | Cluster load | Logout

Service offerings

- LIBRARY definition
- Mechanical FEA services
- Mechanical CFD services
- Mechanical Crash services

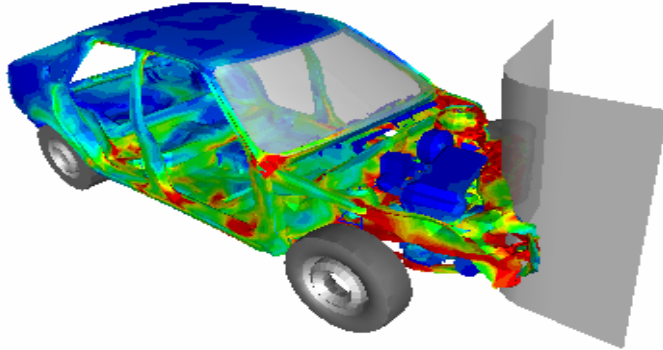
Directory contents - Isdyna simulation

Destroy

Toggle select

<input checked="" type="checkbox"/>	lsdyna.txt	3792	<input checked="" type="checkbox"/>	car.vtf	2518176
	Dec 20, 2004 12:25:28 PM			Dec 20, 2004 12:29:42 PM	

simulation

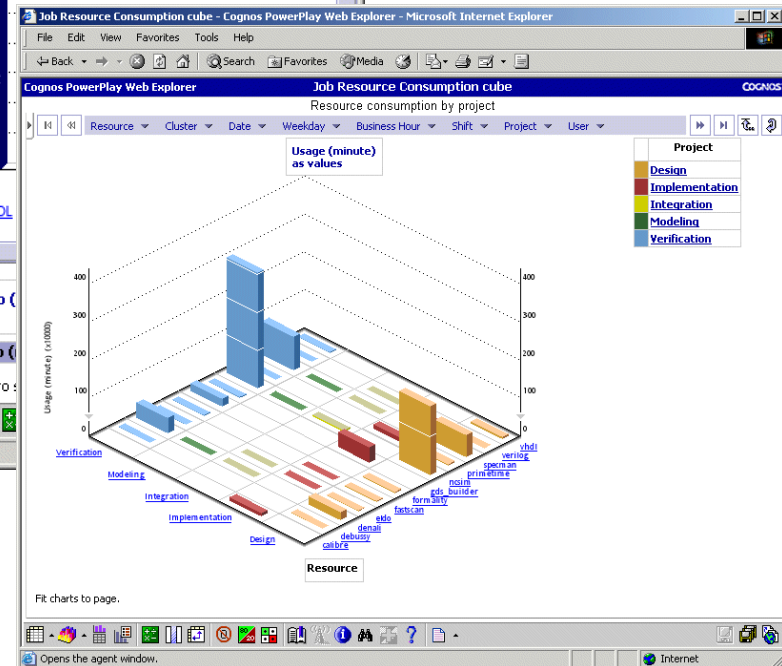
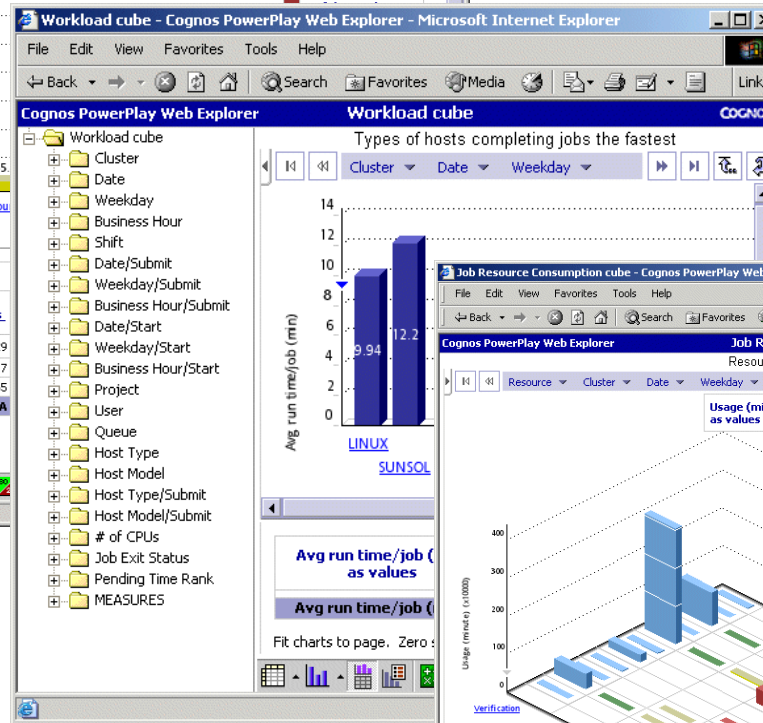
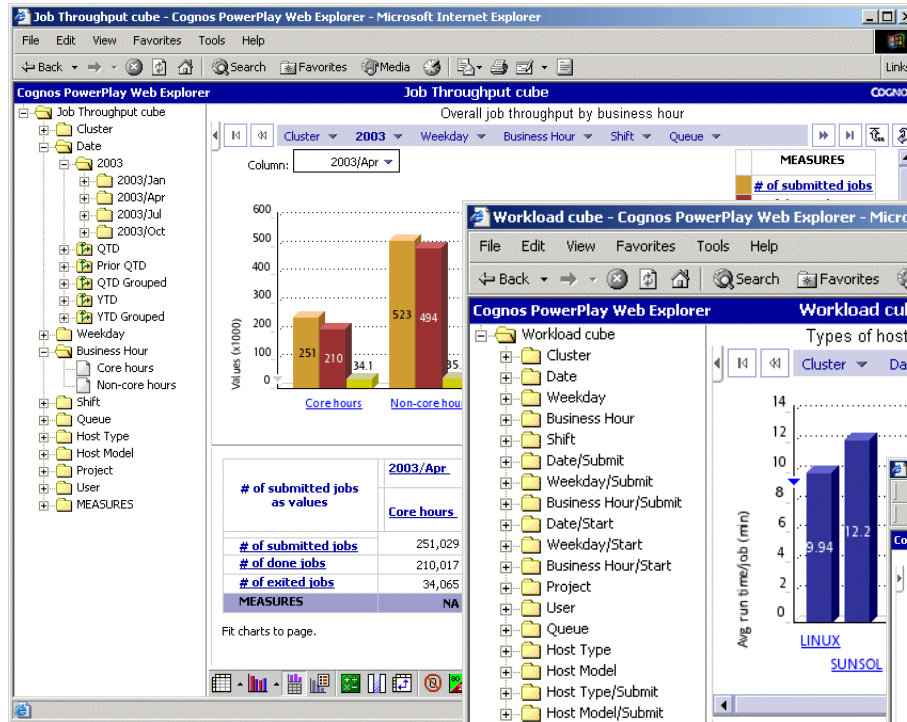


Frame: 9/9
Step: 5

ID	Time	Status	Host	Name
26004	Dec 20 12:23	DONE	antilla	lsdyna simulation

Resource usage: CPU: 105.5s.

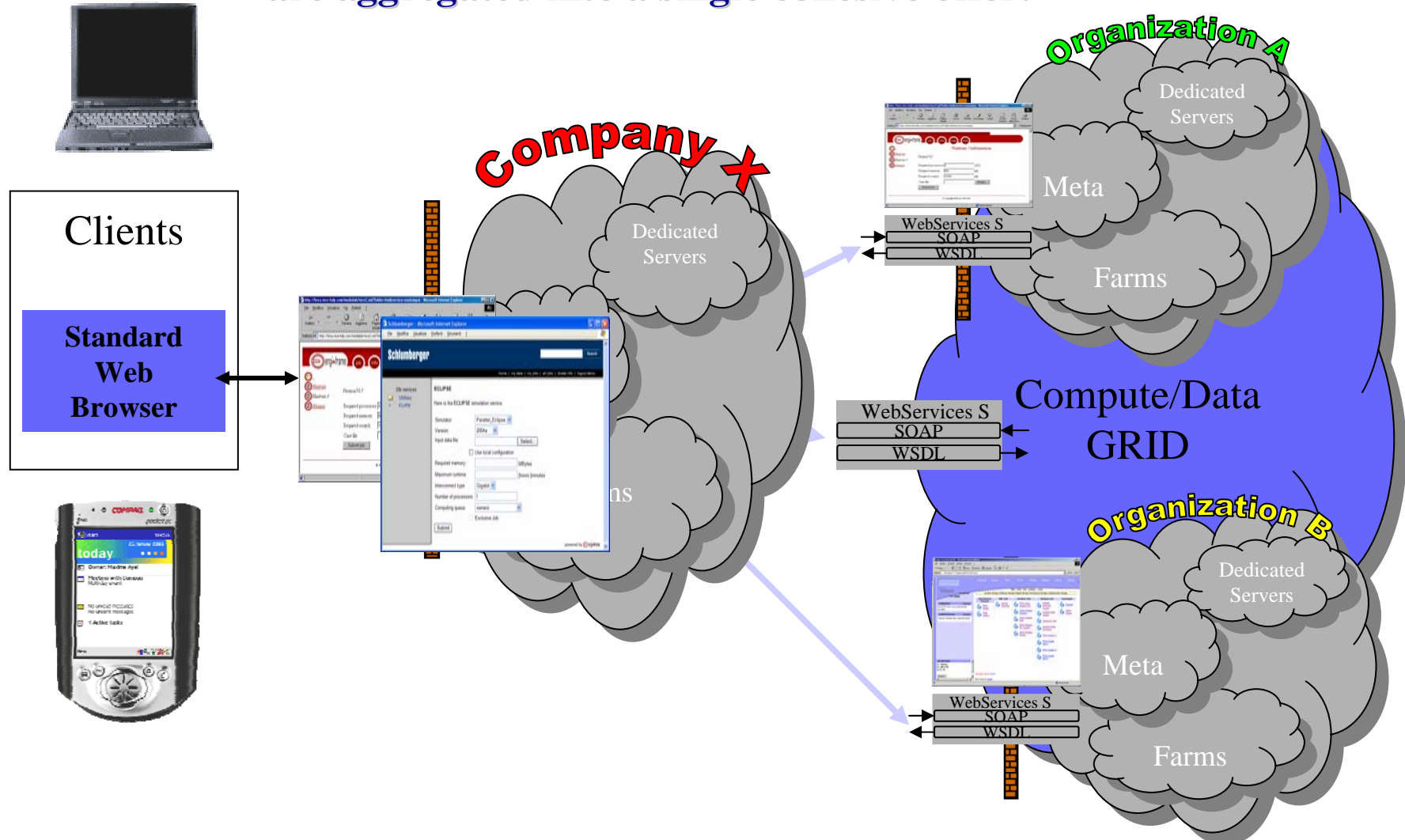


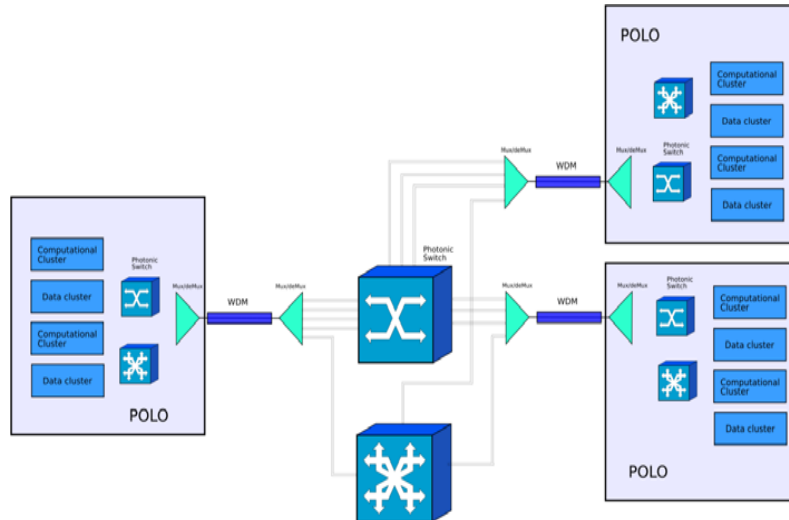


- NICE
- Grids & Grid Portals
- Cases Histories
- Future Trends**



Different services from different Organizations are aggregated into a single cohesive offer!



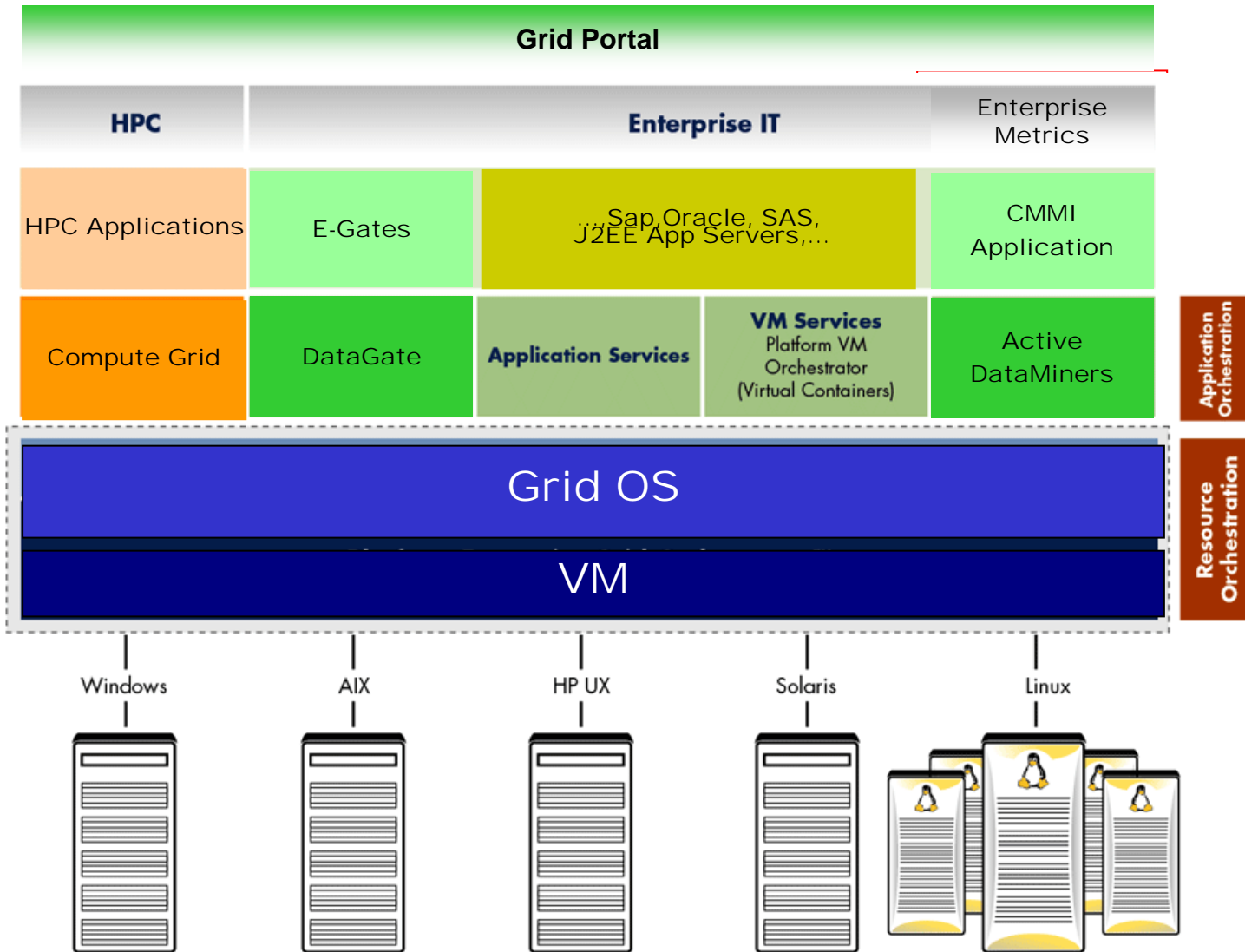


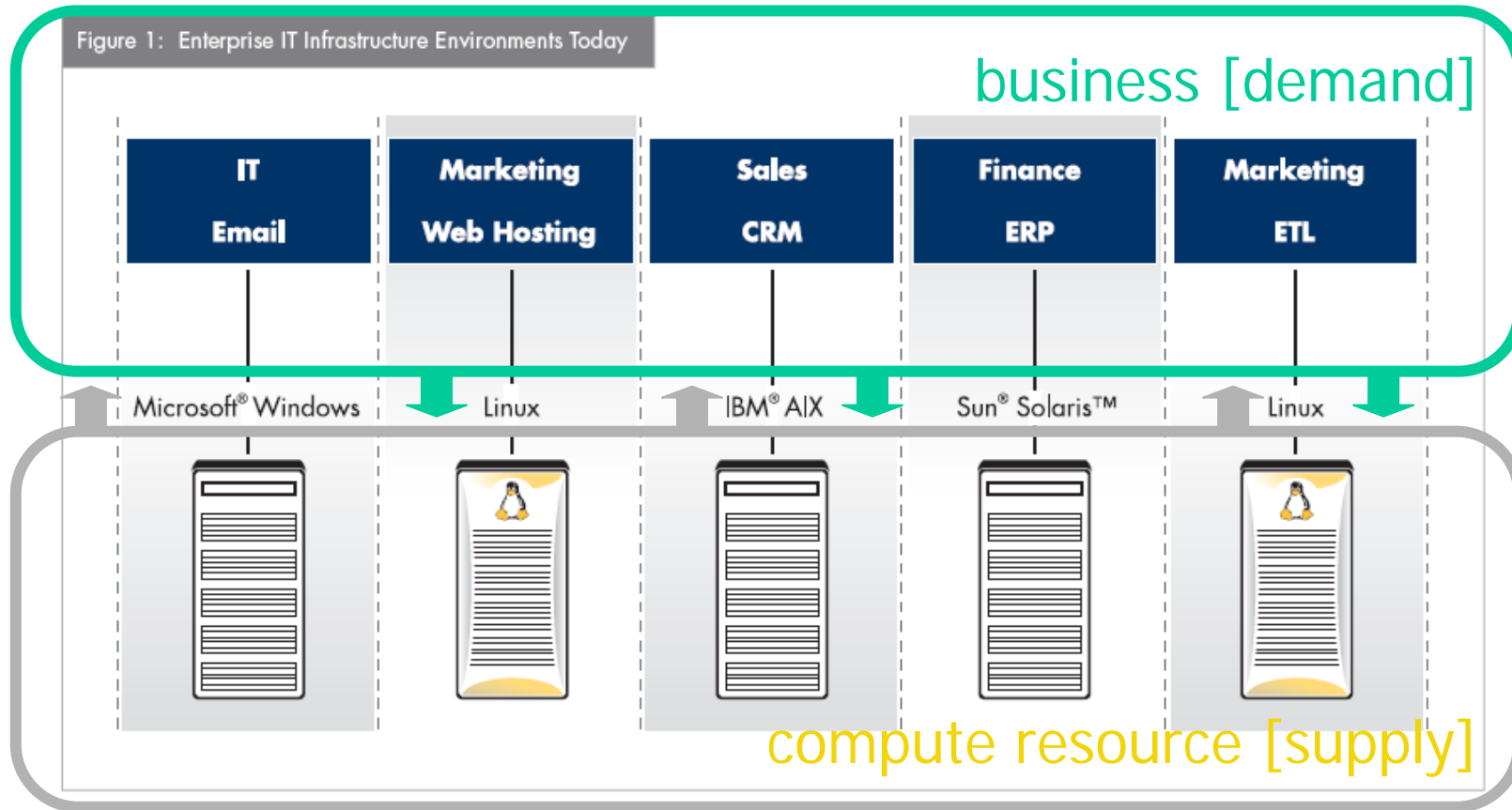
- **Orthogonalization between “glass pipes” and illumination technology**
 - “Future proof”: will survive the 10GbE to 40GbE transition (2007?)
 - Can support both GbE and Infiniband
- **“application driven” network configuration**
 - Explicit allocation of lambdas to multi-centers meta computers



Enabling Grids for E-science

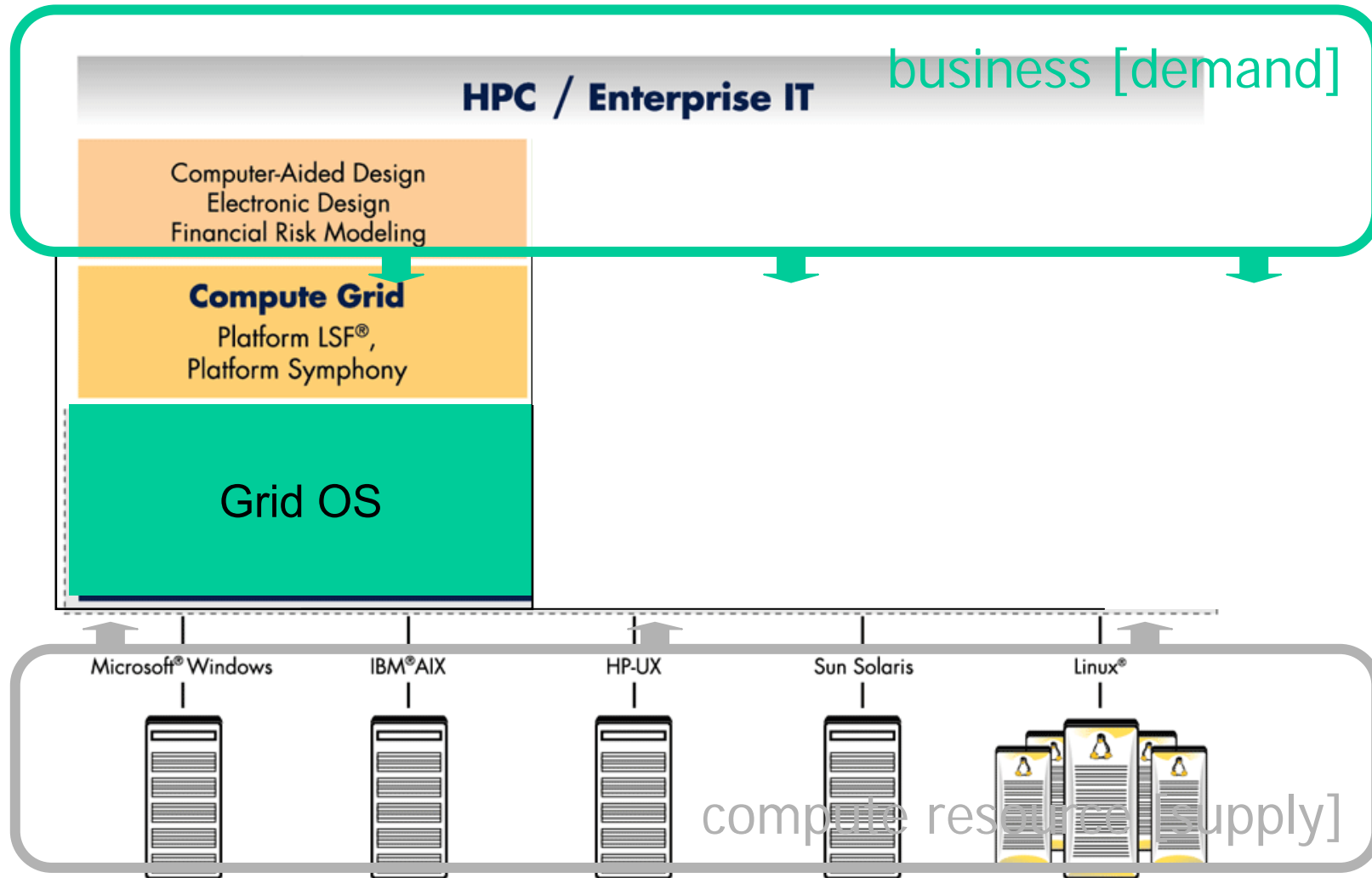
Grid Infrastructure vision





Business [demand] and compute resources [supply] are tightly coupled in silo-ed technology, applications, LOB, and second generation virtualization solutions.





Thanks for your attention!

Q&A

