



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**

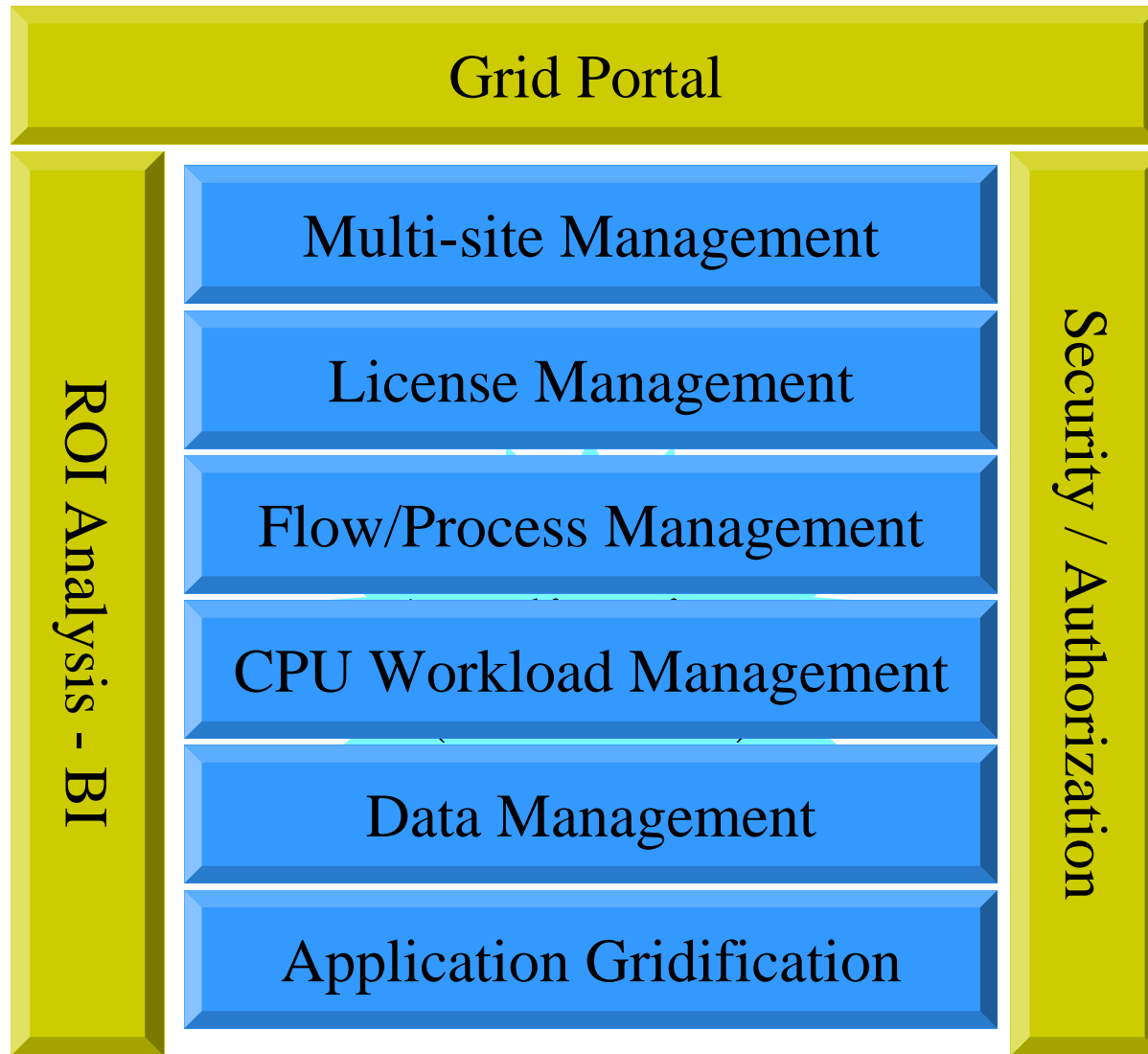
- **Expertise in Grid deployment**
 - European company with 10 years experience with enterprise Grid solutions
 - Comprehensive professional service offering for commercial and EGEE middleware
- **Core business: the Global Grid Gateway**
 - **EnginFrame & GENIUS** Grid Portal product line
 - VAR channels with worldwide coverage for implementation and support (incl. industry leader Platform Computing)
- **Other relevant competencies**
 - Server-based computing

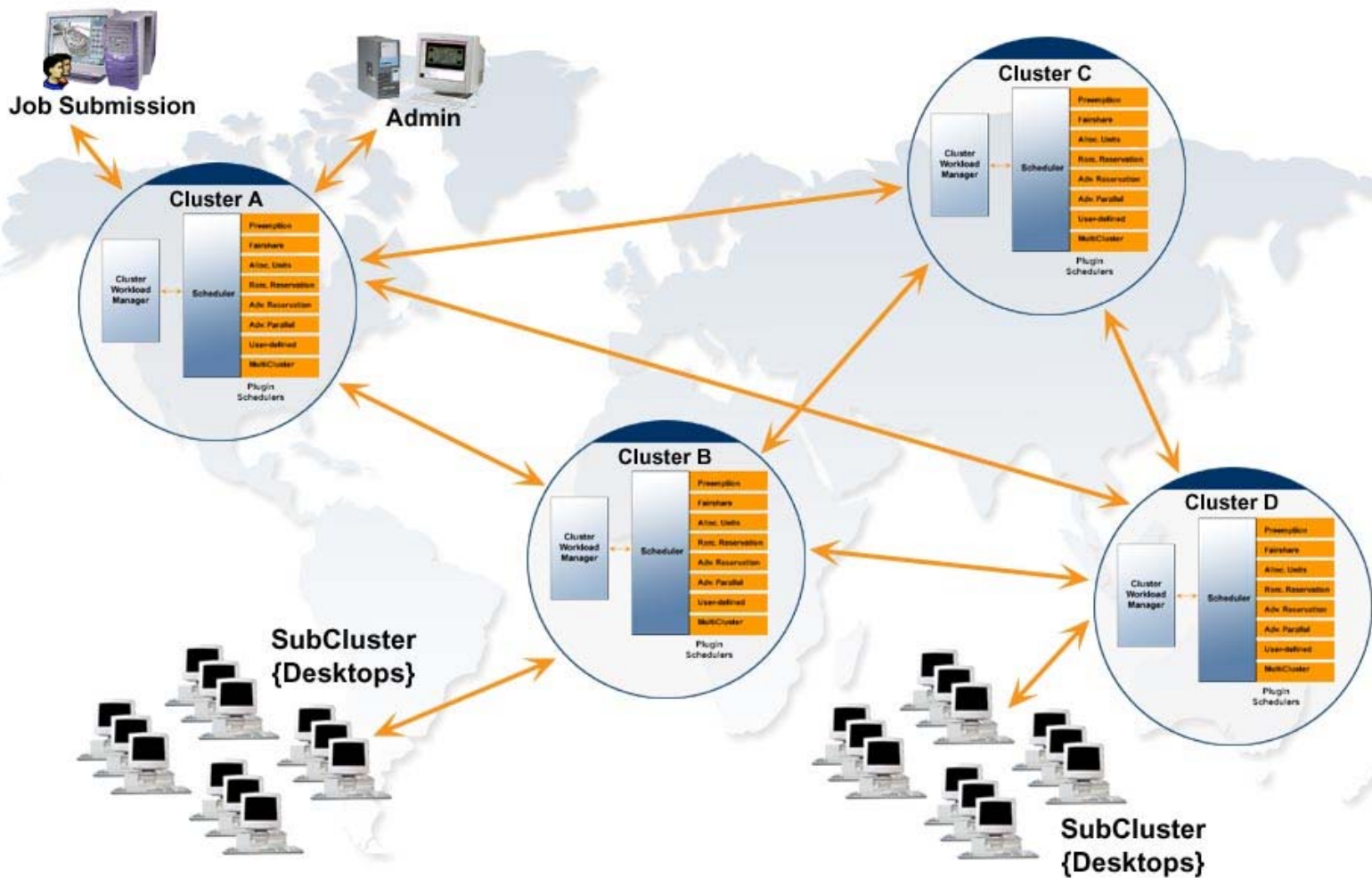


- **Mechanical**
 - Ferrari, Audi, BMW, FIAT Auto, Delphi, Elasis, Magneti Marelli, P+Z, Swagelok, Toyota, TRW
- **Manufacturing**
 - Bridgestone, Procter & Gamble, Galileo Avionica
- **Oil&Gas**
 - Slavneft, Schlumberger, TOTAL, VNIIGaz
- **Electronics**
 - STMicroelectronics, Accent, SensorDynamics, 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**



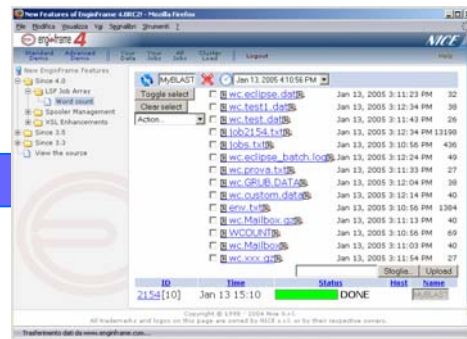


The Grid Portal vision



Clients

Standard
Web
Technology

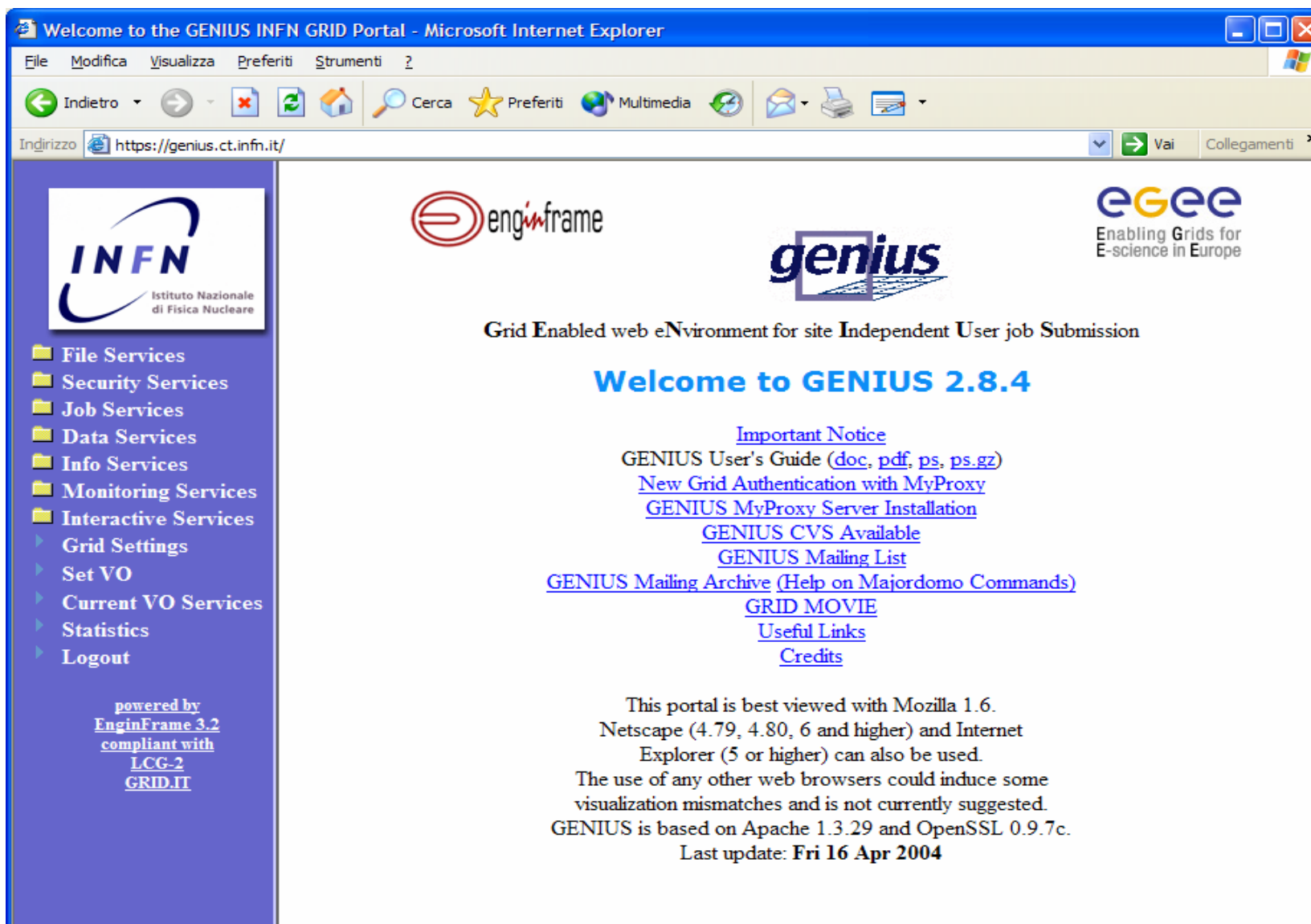


Interactive
Apps

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

- 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](#)

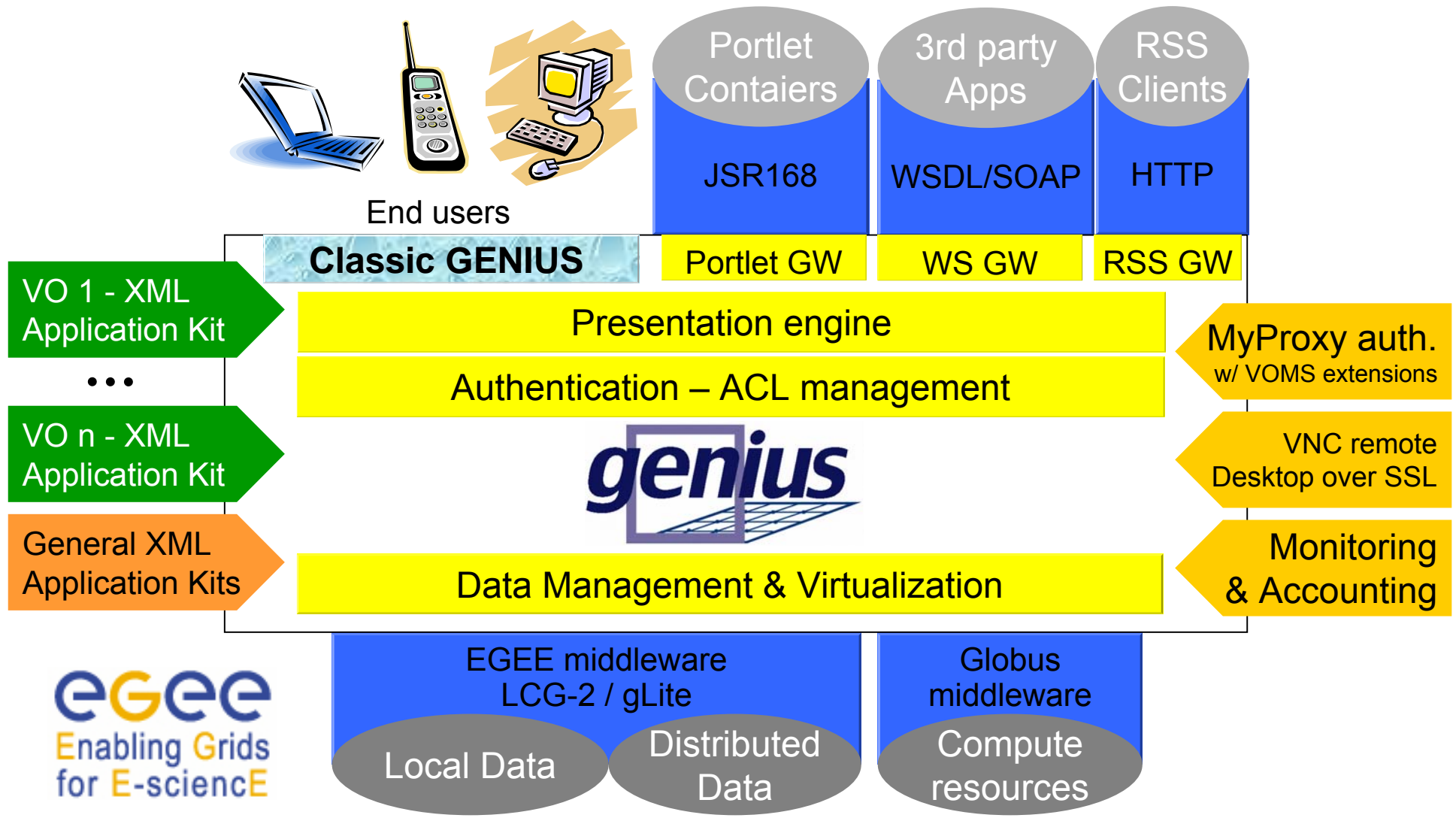




Grid Enabled web eNvironment for site Independent User job Submission

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**





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

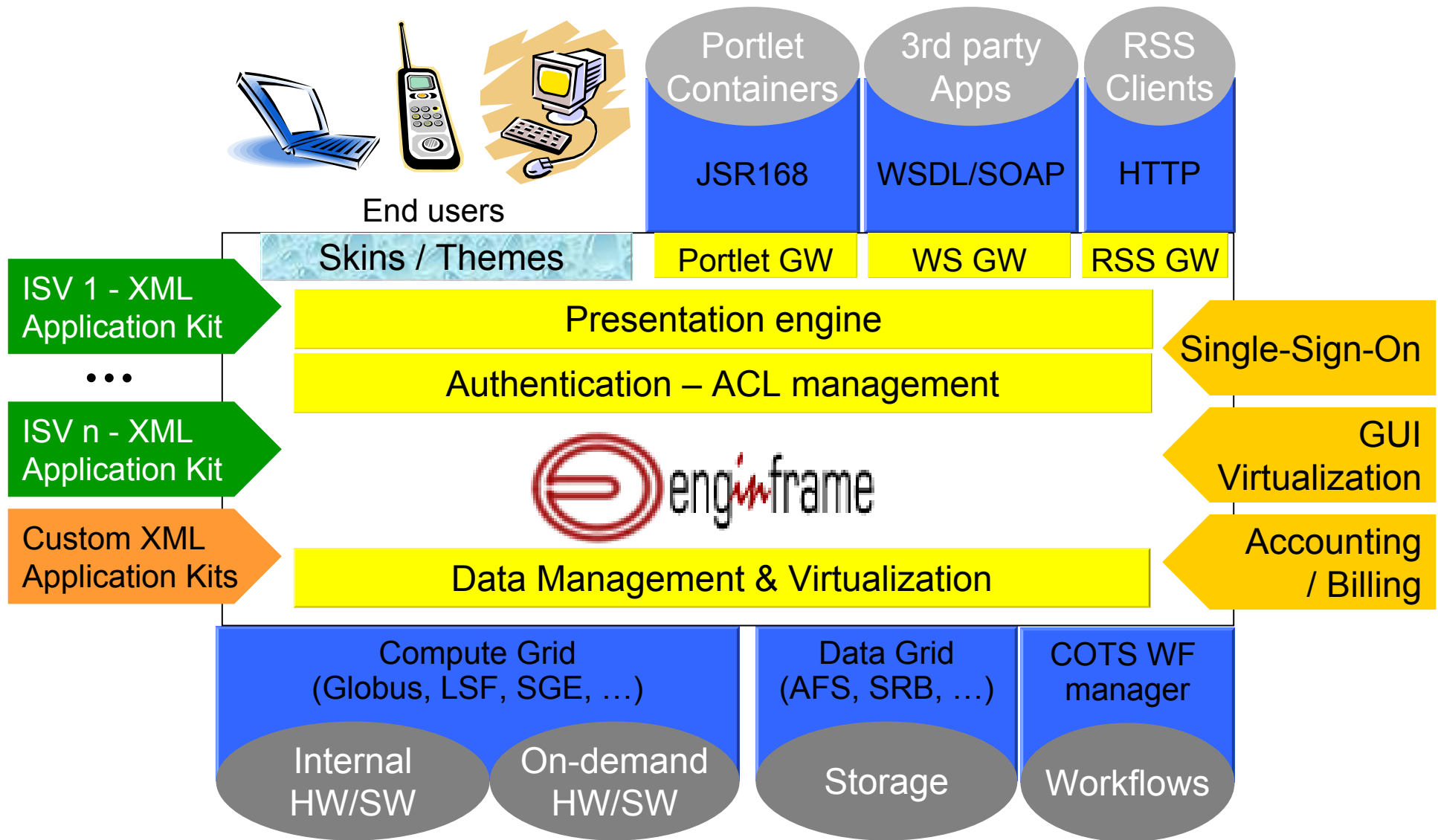
With this service you can rename a file or a directory on the Catalog of your Virtual Organization.

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 Reservoir Portal

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



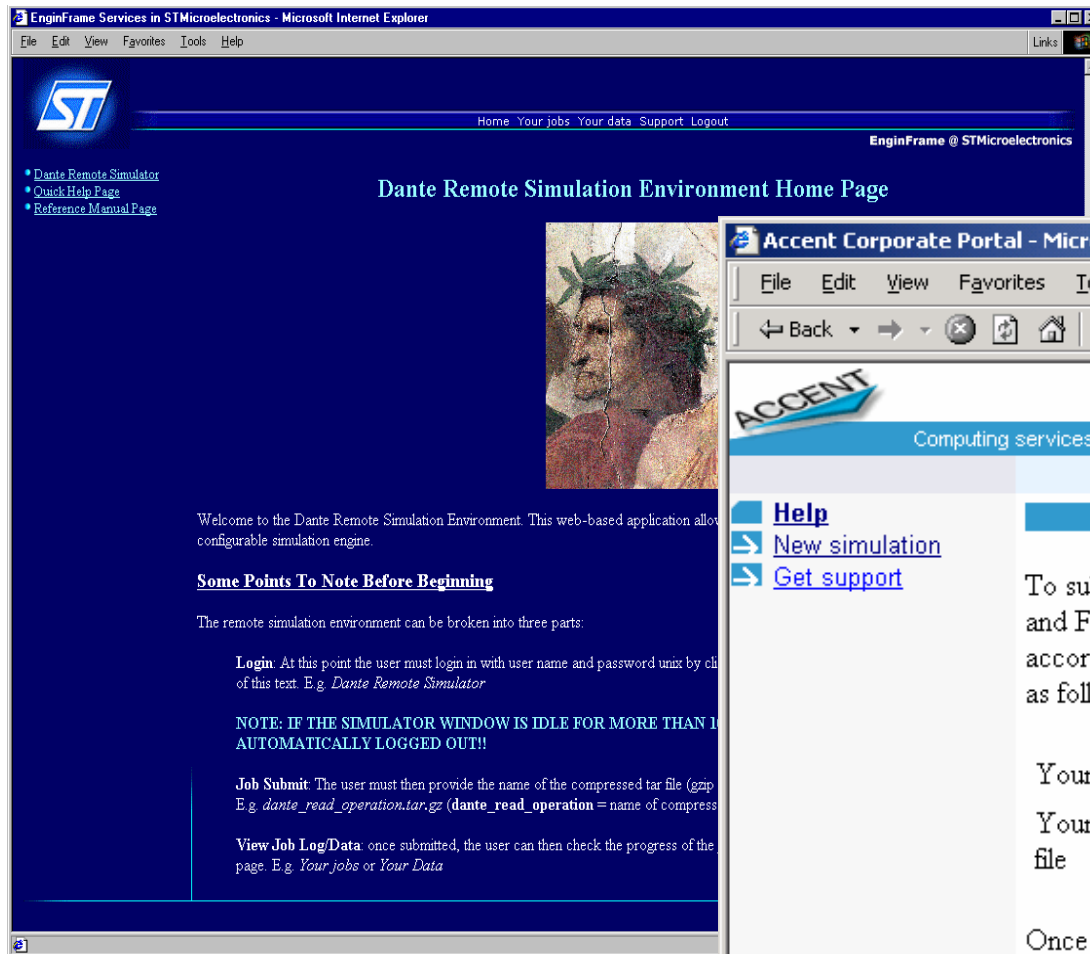


MCAE portals in Automotive

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 is titled "CAE PORTAL" and "Data Manager LSDYNA". It includes fields for "JOB DESCRIPTION:", "INPUT FILE:", "QUEUE SELECTION:", "N. CPU (MAX. 8):", "MEMORY:", "VERSION:", "RESTART FILE:", and "ADDITIONAL OPTIONS:". A "SUBMIT JOB" button is visible. The interface is powered by EngineFrame.

Overlaid on the right is a Microsoft Internet Explorer window titled "Audi World Site - News". The browser shows the Audi Corporate ASP interface, which is "Powered by EngineFrame + FlowGuide". The interface includes a navigation menu with "stage", "models", "service", "facts", and "news". The main content area displays "Audi Pamcrash_preprocessed" and includes a form for "LSF hosts" with "Select..." and "Clean" buttons. Other fields include "Projektname", "Berechnungsfall", and "Input Deck" with a "Select..." button. There are also checkboxes for "Auslieferung in Eingabeverzeichnis?", "Restartfiles ins Eingabeverzeichnis?", and "Auslieferung ins Archiv?". The "Pamcrash Version" is set to "98". The browser's status bar shows "Operazione completata. Errori nella visualizzazione della pagina." and "Internet".



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 simulation jobs using a configurable simulation engine.

Some Points To Note Before Beginning

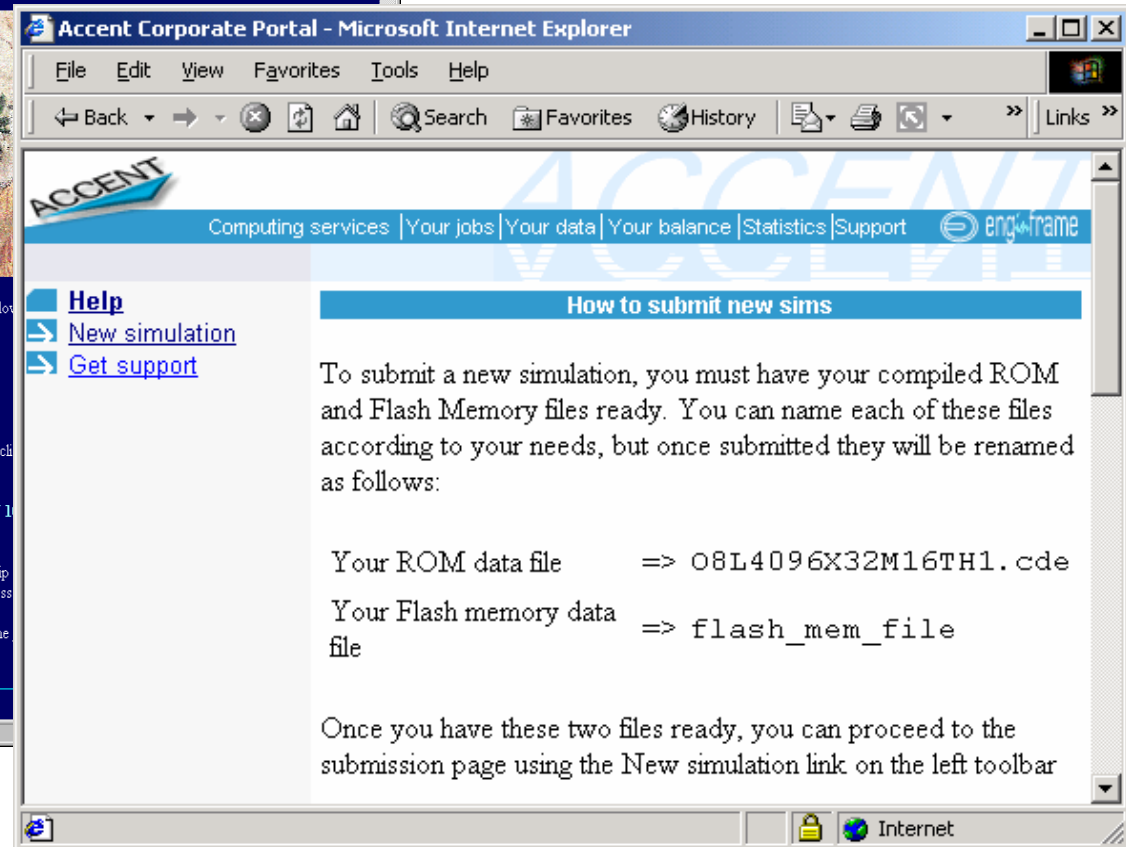
The remote simulation environment can be broken into three parts:

Login: At this point the user must login in with user name and password using the following format: `username@hostname`. E.g. `dante_read_operation@st.com`

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). 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. 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:

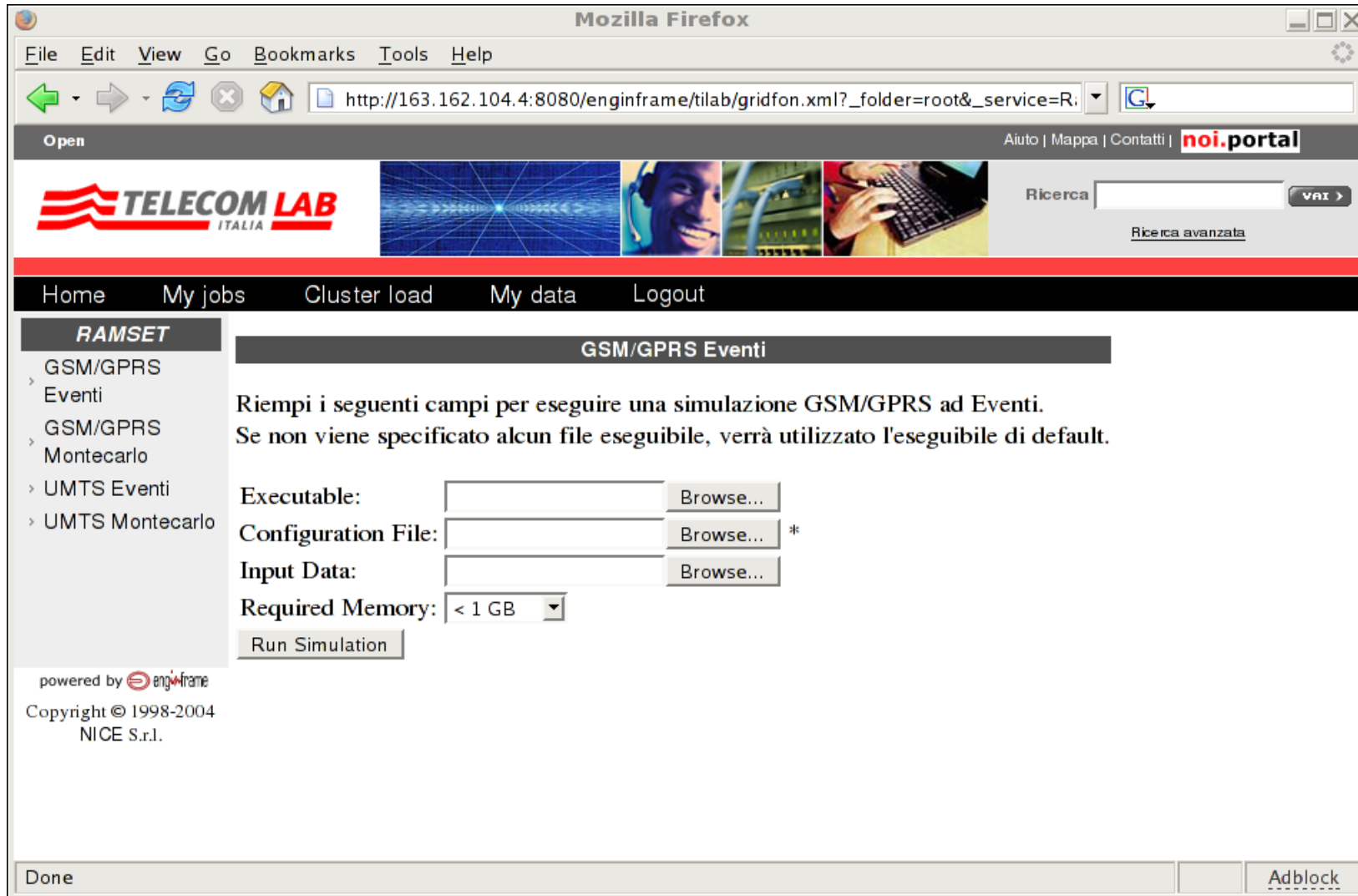
Your ROM data file => `08L4096X32M16TH1.cde`

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





Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://163.162.104.4:8080/enginframe/tilab/gridfon.xml?_folder=root&_service=R

Open Aiuto | Mappa | Contatti | **noi.portal**

TELECOM LAB ITALIA

Ricerca **vai >**
Ricerca avanzata

Home My jobs Cluster load My data Logout

RAMSET

- ▶ GSM/GPRS
 - ▶ Eventi
 - ▶ GSM/GPRS Montecarlo
 - ▶ UMTS Eventi
 - ▶ UMTS Montecarlo

GSM/GPRS Eventi


Riempi i seguenti campi per eseguire una simulazione GSM/GPRS ad Eventi.
Se non viene specificato alcun file eseguibile, verrà utilizzato l'eseguibile di default.

Executable:

Configuration File: *

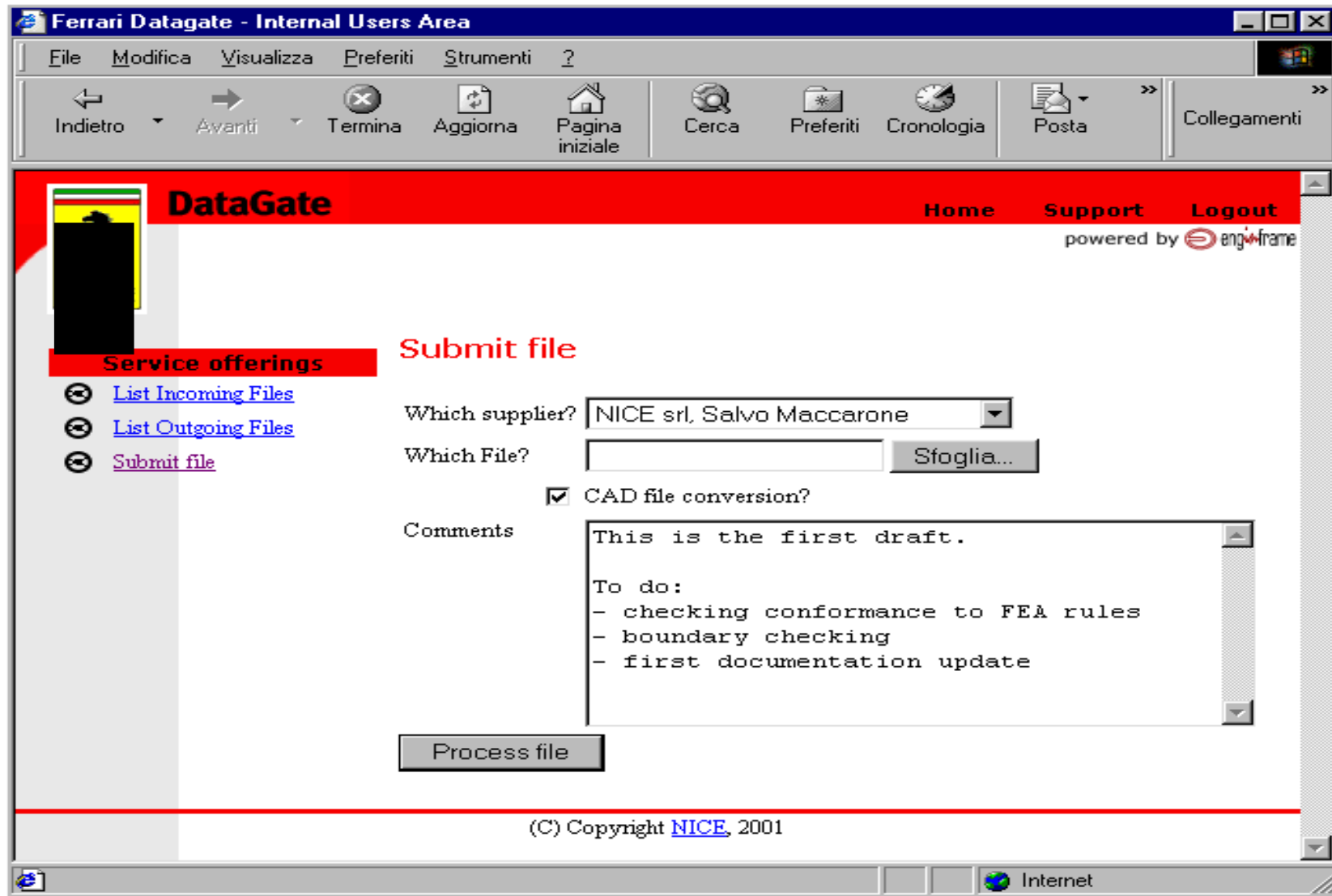
Input Data:

Required Memory: < 1 GB

powered by  enginframe

Copyright © 1998-2004
NICE S.r.l.

Done



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, under "Service offerings", there are three links: "List Incoming Files", "List Outgoing Files", and "Submit file".

The "Submit file" form includes:

- "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.

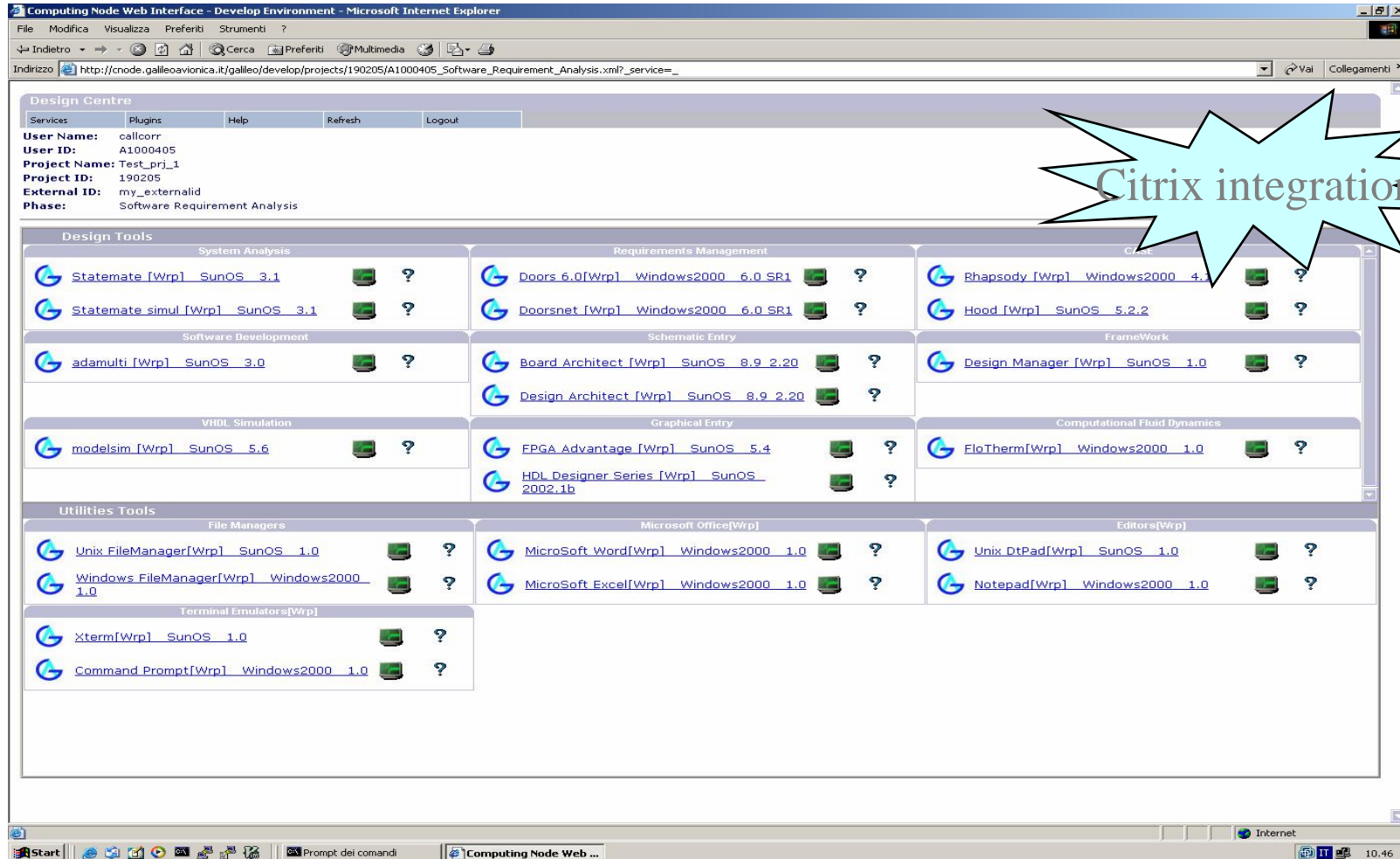
To do:
- checking conformance to FEA rules
- boundary checking
- first documentation update

At the bottom of the form is a "Process file" button.

The footer of the page contains the text "(C) Copyright NICE, 2001".

The browser's status bar at the bottom shows "Internet".





The screenshot shows a web browser window titled "Computing Node Web Interface - Develop Environment - Microsoft Internet Explorer". The address bar shows a URL: http://cnode.galleoavionica.it/galleo/develop/projects/190205/A1000405_Software_Requirement_Analysis.xml?_service=_

The main content area is titled "Design Centre" and includes a navigation menu with "Services", "Plugins", "Help", "Refresh", and "Logout". Below this, user and project information is displayed:

- User Name: callcorr
- User ID: A1000405
- Project Name: Test_prj_1
- Project ID: 190205
- External ID: my_externalid
- Phase: Software Requirement Analysis

The interface is organized into several tool categories:

- Design Tools**
 - System Analysis:** StateMate [Wrp] SunOS 3.1, StateMate simul [Wrp] SunOS 3.1
 - Requirements Management:** Doors 6.0[Wrp] Windows2000 6.0 SR1, Doorsnet [Wrp] Windows2000 6.0 SR1
 - Software Development:** adamulti [Wrp] SunOS 3.0
 - Schematic Entry:** Board Architect [Wrp] SunOS 8.9 2.20, Design Architect [Wrp] SunOS 8.9 2.20
 - FrameWork:** Design Manager [Wrp] SunOS 1.0
 - VHDL Simulation:** modelsim [Wrp] SunOS 5.6
 - Graphical Entry:** FPGA Advantage [Wrp] SunOS 5.4, HDL Designer Series [Wrp] SunOS 2002.1b
 - Computational Fluid Dynamics:** FloTherm[Wrp] Windows2000 1.0
- Utilities Tools**
 - File Managers:** Unix FileManager[Wrp] SunOS 1.0, Windows FileManager[Wrp] Windows2000 1.0
 - Microsoft Office[Wrp]:** MicroSoft Word[Wrp] Windows2000 1.0, MicroSoft Excell[Wrp] Windows2000 1.0
 - Editors[Wrp]:** Unix DtPad[Wrp] SunOS 1.0, Notepad[Wrp] Windows2000 1.0
 - Terminal Emulators[Wrp]:** Xterm[Wrp] SunOS 1.0, Command Prompt[Wrp] Windows2000 1.0

A starburst graphic with the text "Citrix integration" is overlaid on the right side of the interface.

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

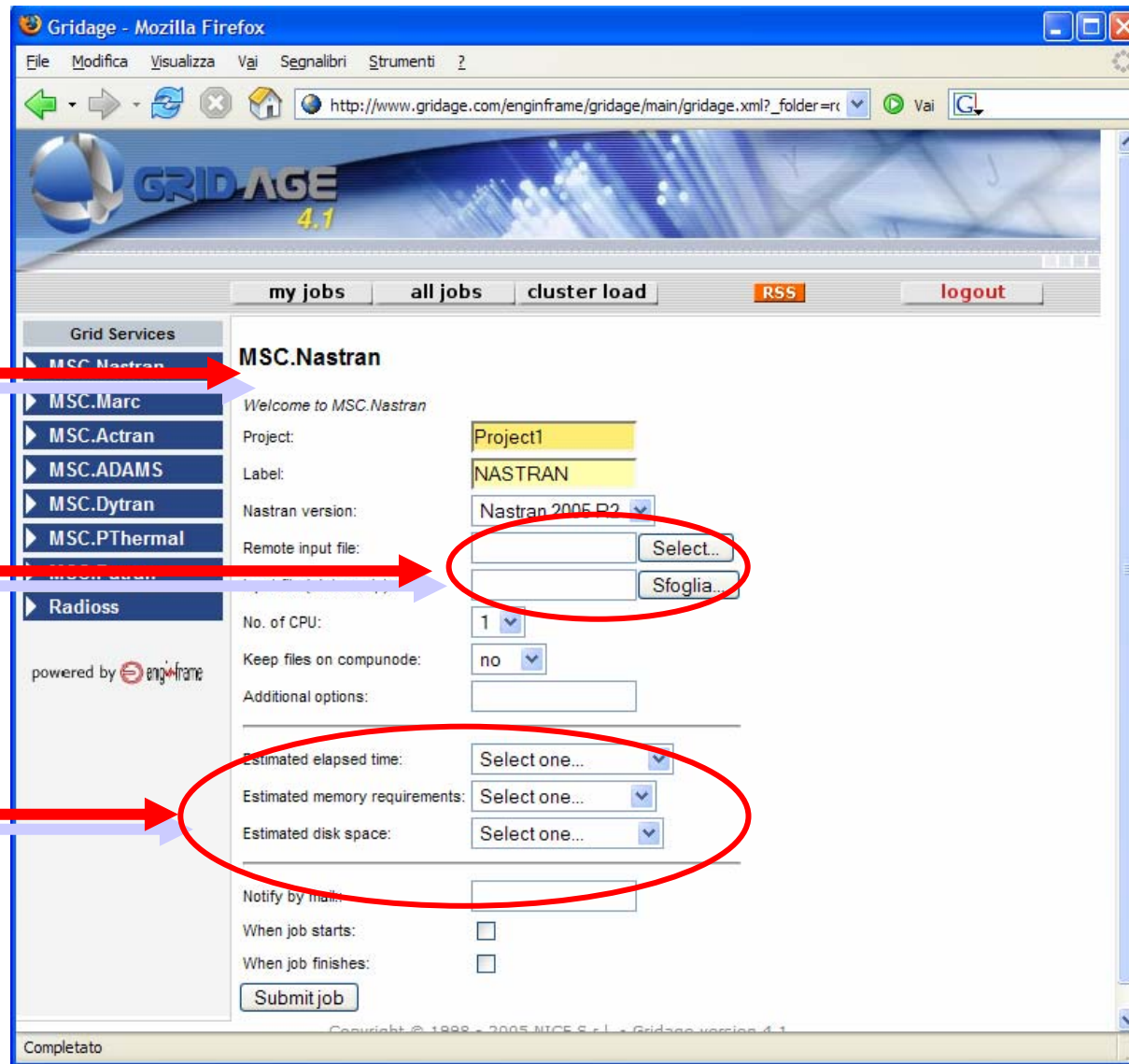
www.mscsoftware.com | www.hp.com | www.nice-italy.com | www.intel.com | Internet

<http://www.GridAge.com>

*User friendly,
Application-oriented
Job submission*

*Flexible and efficient
Input file management*

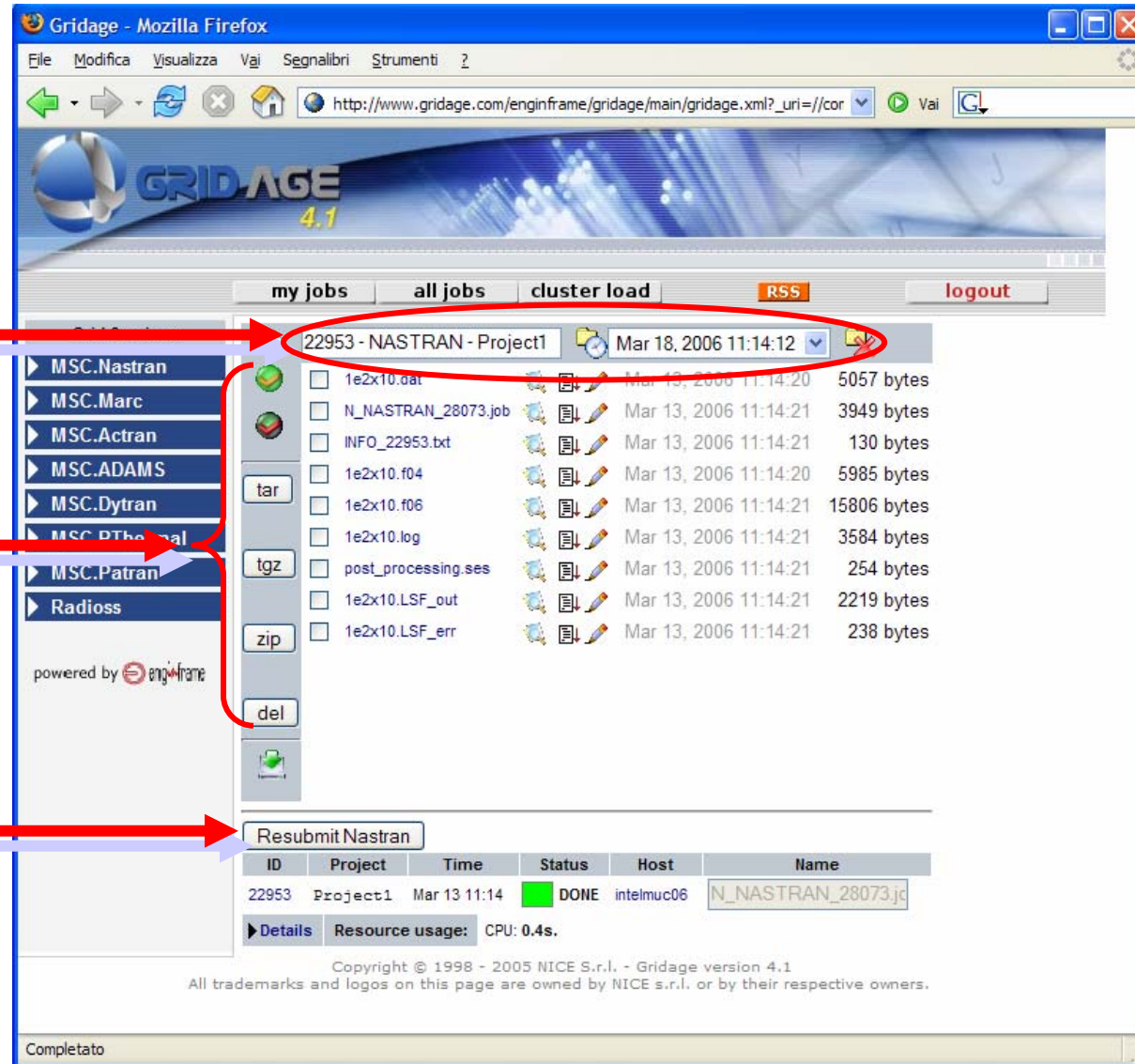
*Hide complexity of
Underlying scheduler*



Data lifecycle management

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

Follow-up actions support



Gridage - Mozilla Firefox

http://www.gridage.com/engineframe/gridage/main/gridage.xml?_uri=//cor

GRIDAGE 4.1

my jobs | all jobs | cluster load | RSS | logout

22953 - NASTRAN - Project1 | Mar 18, 2006 11:14:12

<input type="checkbox"/>	1e2x10.dat	Mar 13, 2006 11:14:20	5057 bytes
<input type="checkbox"/>	N_NASTRAN_28073.job	Mar 13, 2006 11:14:21	3949 bytes
<input type="checkbox"/>	INFO_22953.txt	Mar 13, 2006 11:14:21	130 bytes
<input type="checkbox"/>	1e2x10.f04	Mar 13, 2006 11:14:20	5985 bytes
<input type="checkbox"/>	1e2x10.f06	Mar 13, 2006 11:14:21	15806 bytes
<input type="checkbox"/>	1e2x10.log	Mar 13, 2006 11:14:21	3584 bytes
<input type="checkbox"/>	post_processing.ses	Mar 13, 2006 11:14:21	254 bytes
<input type="checkbox"/>	1e2x10.LSF_out	Mar 13, 2006 11:14:21	2219 bytes
<input type="checkbox"/>	1e2x10.LSF_err	Mar 13, 2006 11:14:21	238 bytes

MSC.Nastran
MSC.Marc
MSC.Actran
MSC.ADAMS
MSC.Dytran
MSC.Patran
Radioss

powered by engineframe

Resubmit Nastran

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

Details | Resource usage: CPU: 0.4s.

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Completato

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

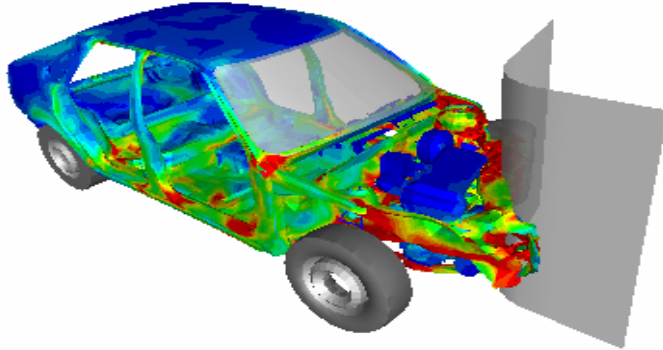
Directory contents - Isdyna simulation

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

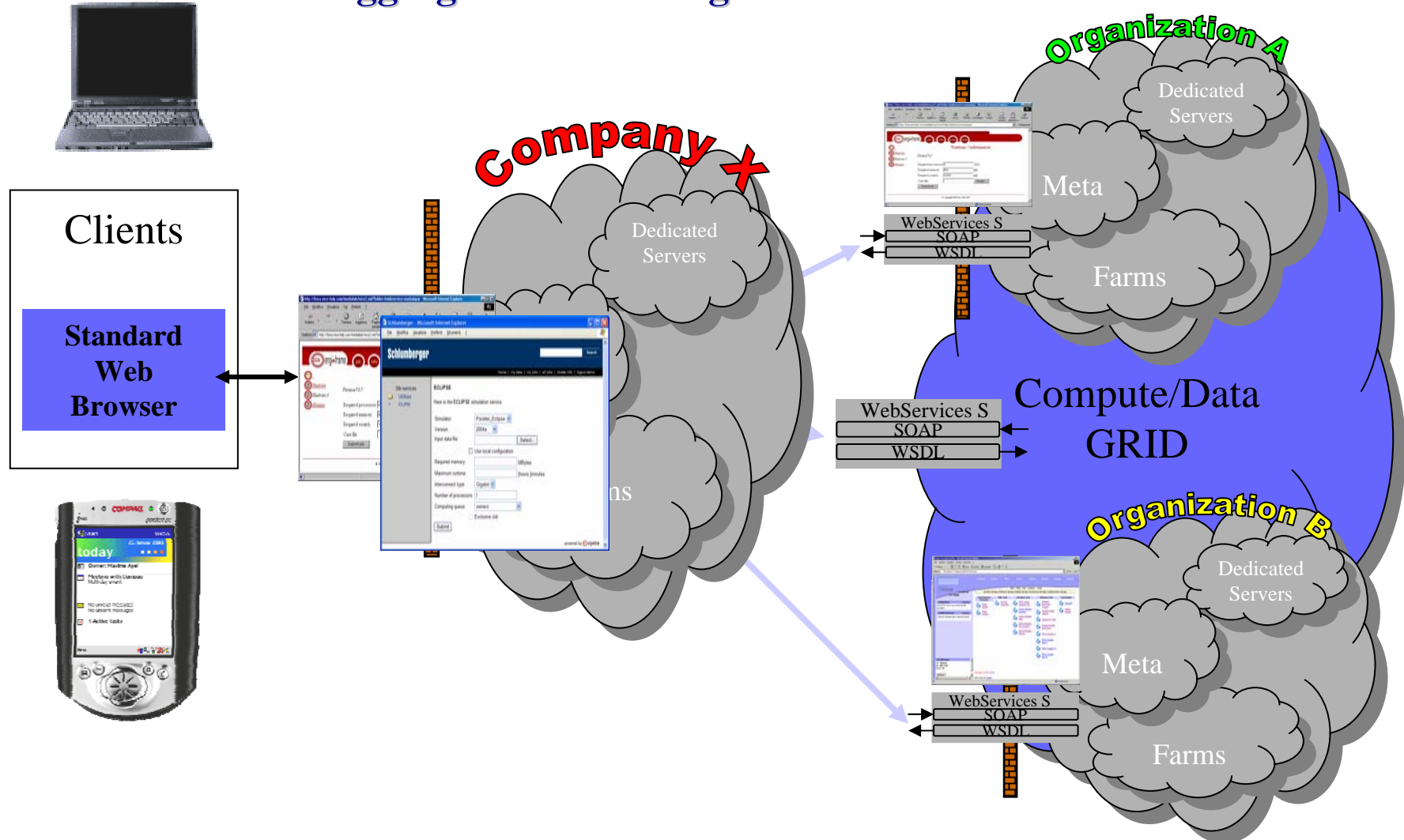
Resource usage: CPU: 105.5s.

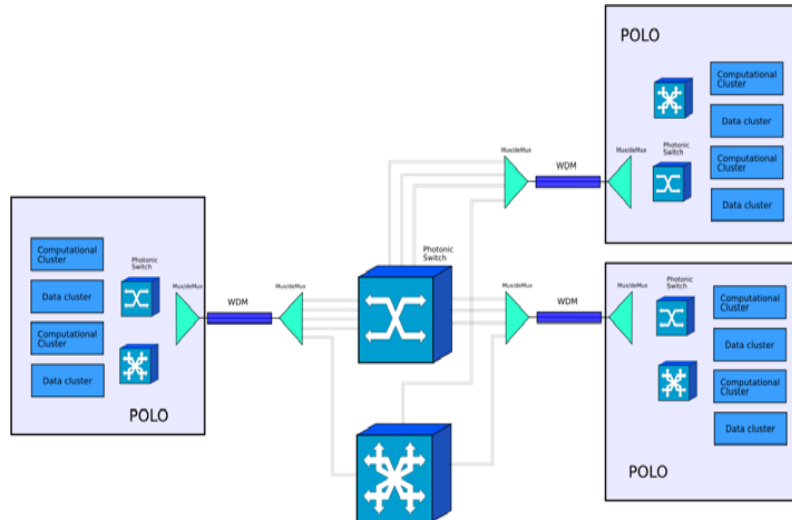


- NICE
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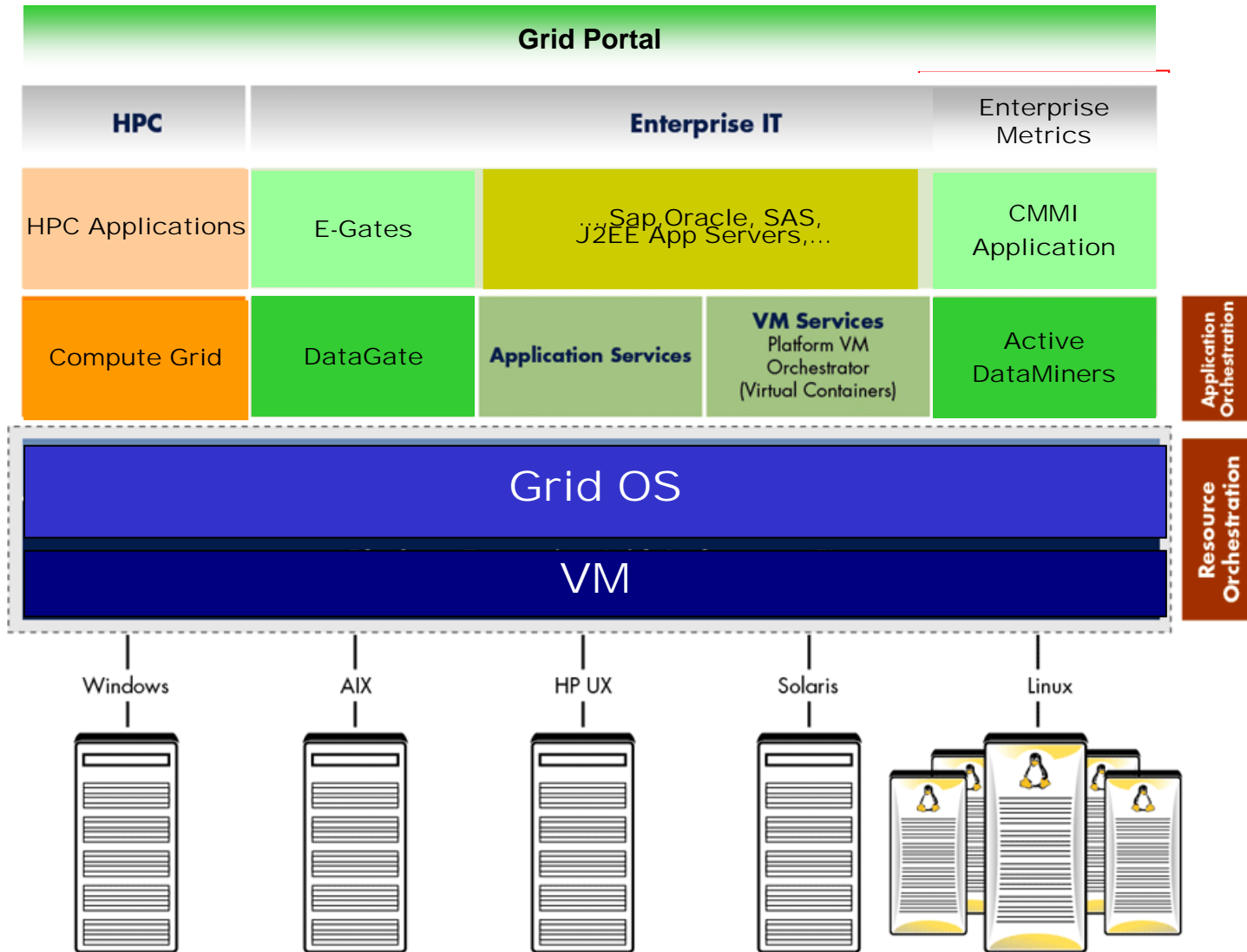
Different services from different Organizations are aggregated into a single cohesive offer!

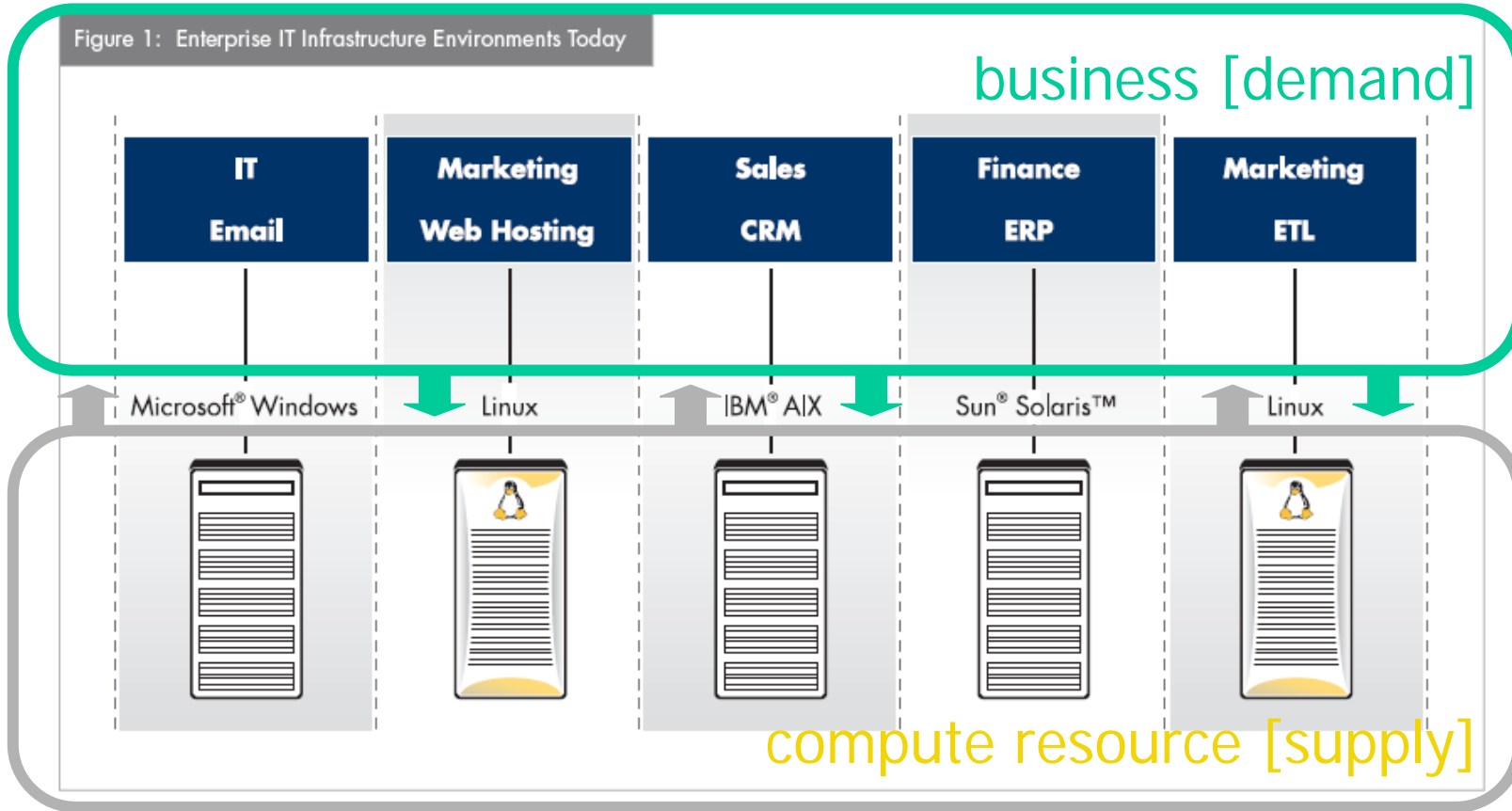




- **Orthogonalization between “glass pipes” and illumination technology**
 - “Future proof”: will survive the 10GbE to 40GbE transition (2007?)
 - Can support both GbE and Infiniband
- **“application driven” network configuration**
 - Explicit allocation of lambdas to multi-centers meta computers

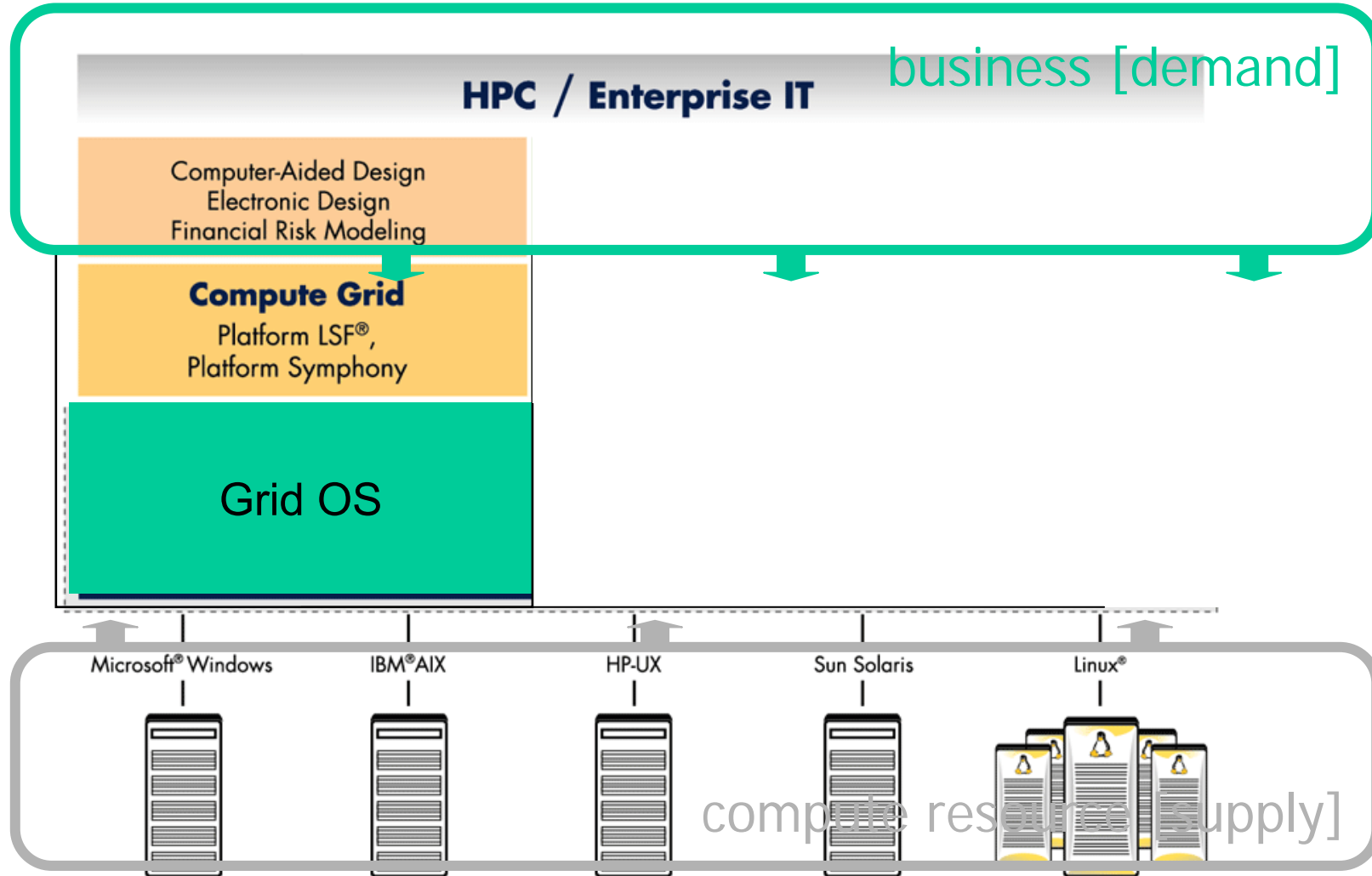
Grid Infrastructure vision





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

