

DEISA infrastructure



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DEISA and accounting



DEISA

- DEISA (Distributed European Infrastructure for Supercomputer Applications) is an EU funded project.
- *Objective is to enable Europe's terascale science by the integration of Europe's most powerful supercomputing systems.*
- DEISA is an European Supercomputing Service built on top of existing national services. This service is based on the deployment and operation of a persistent, production quality, distributed supercomputing environment with continental scope.
- Main focus is High Performance Computing (HPC).
- DEISA services are deployed on top of a dedicated high speed network infrastructure connecting computing platforms, using selected middleware. Their primordial objective is enabling capability computing across remote computing platforms and data repositories.

THE DEISA SUPERCOMPUTING GRID



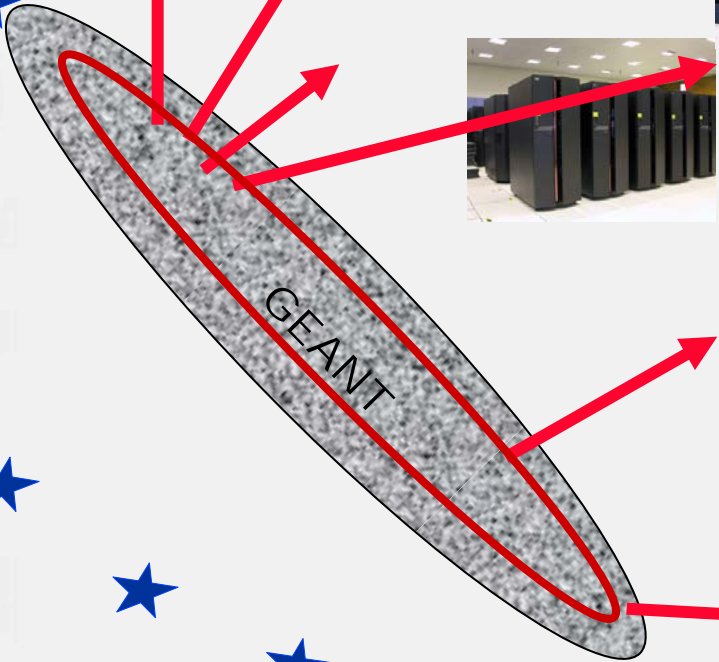
**AIX distributed
super-cluster**



**Vector systems
(NEC, ...)**



**Linux systems
(SGI, IBM, ...)**

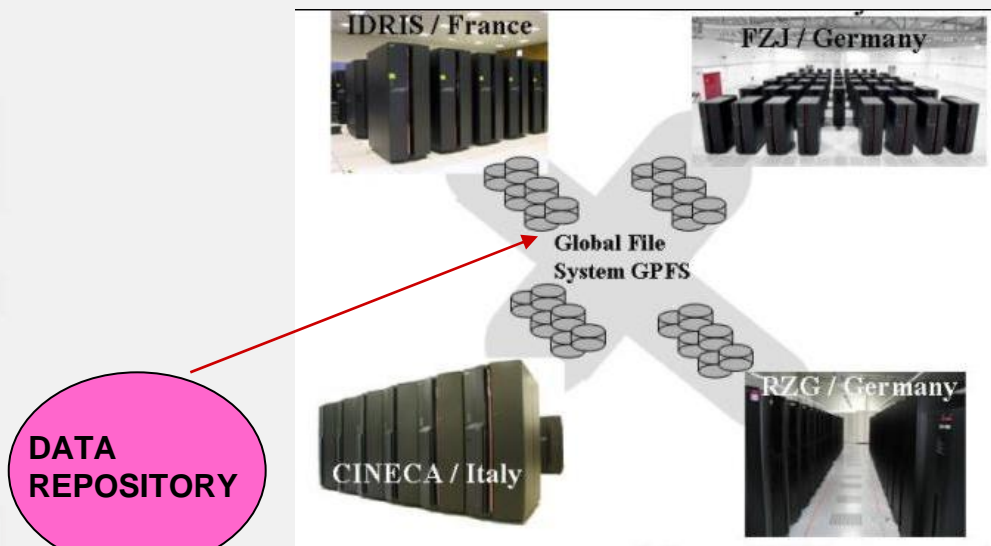


Participating Sites



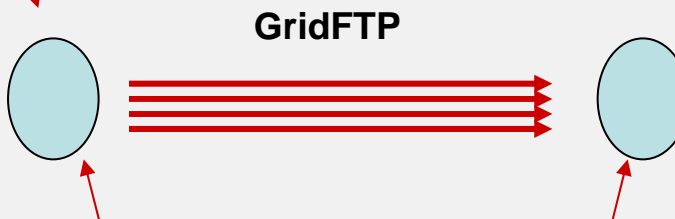
BSC	<i>Barcelona Supercomputing Centre</i>	Spain
CINECA	<i>Consorzio Interuniversitario per il Calcolo Automatico</i>	Italy
CSC	<i>Finnish Information Technology Centre for Science</i>	Finland
EPCC/HPCx	<i>University of Edinburgh and CCLRC</i>	UK
ECMWF	<i>European Centre for Medium-Range Weather Forecast</i>	UK (int)
FZJ	<i>Research Centre Juelich</i>	Germany
HLRS	<i>High Performance Computing Centre Stuttgart</i>	Germany
IDRIS	<i>Institut du Développement et des Ressources en Informatique Scientifique - CNRS</i>	France
LRZ	<i>Leibniz Rechenzentrum Munich</i>	Germany
RZG	<i>Rechenzentrum Garching of the Max Planck Society</i>	Germany
SARA	<i>Dutch National High Performance Computing and Networking centre</i>	The Netherlands

Basic services: high performance remote I/O and file transfer

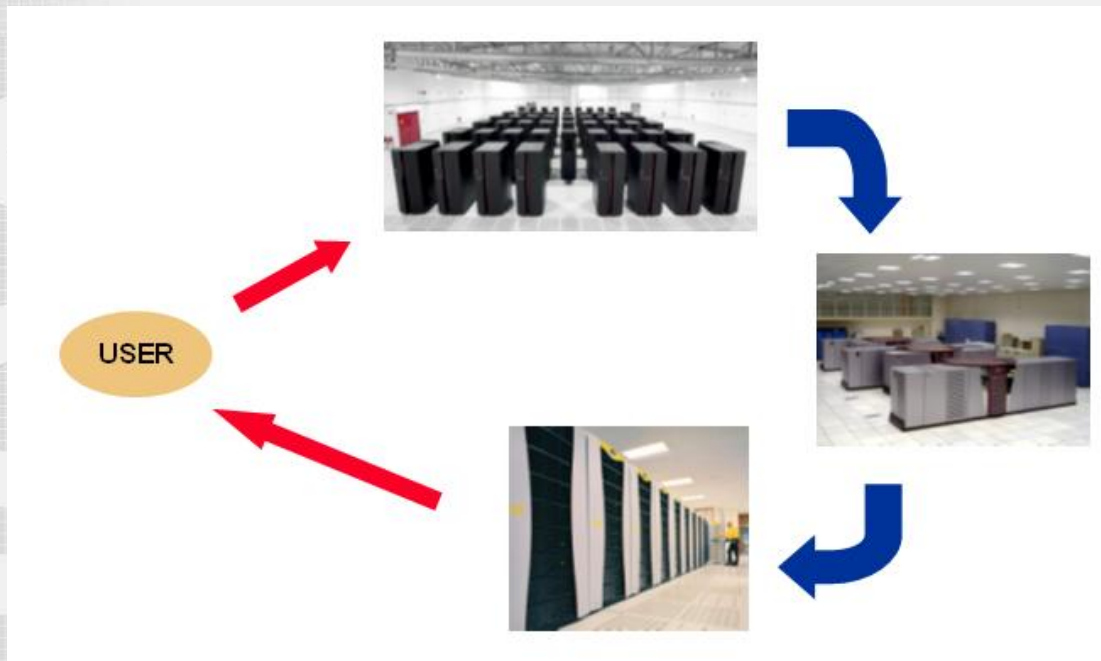


Remote I/O with global file systems **implicitly** moves data across platforms (in production today)

DEISA will also deploy **explicit** high performance data movers, using GridFTP



Basic services: workflow simulations using UNICORE



UNICORE supports complex simulations that are pipelined over several heterogeneous platforms (workflows).

UNICORE handles workflows as a unique job and transparently moves the output – input data along the pipeline.

UNICORE clients that monitor the application can run in laptops.

UNICORE has a user friendly graphical interface. DEISA has developed a command line interface for UNICORE.

Enabling science

- Promotion of DEISA users is done via the Extreme Computing Initiative.
- European call for proposals for grand challenge simulations every year in May since 2005.
- About 50 grand challenge projects supported each year since 2005.
- Results of one of the the projects, POLYRES, featured as cover story of Nature, May 24, 2007
- Full information about Extreme Computing projects and reports from completed projects can be found in the DEISA Web server:

www.deisa.org



DEISA accounting



DEISA



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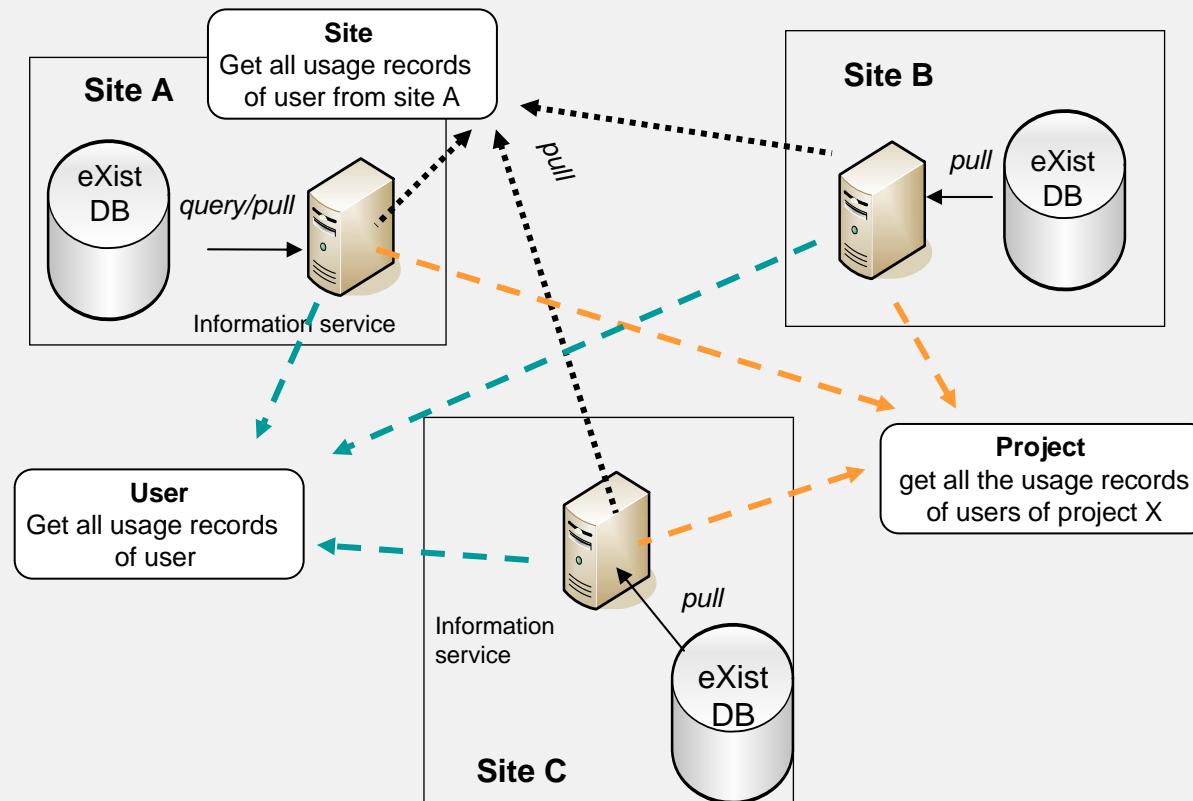


DEISA Accounting – key properties



- Data is stored in XML database in standard format (following OGF UR-WG recommendation)
- It is a distributed facility, each sites publishes data locally and controls who does have access
- Access to the data is provided through an information server – HTTP server with CGI script
- Authorized access is based on X.509 certificates, using secure communication (https)
 - 4 roles: User, Site administrator, Application project administrator, and DEISA supervisor
 - Access information can be automatically generated from information of UAS, except for supervisors.
 - "/O=dutchgrid/O=users/O=sara/CN=Jules Wolfrat" site-SARA
 - "/O=dutchgrid/O=users/O=sara/CN=Jules Wolfrat" user-sar00005

Accounting - architecture



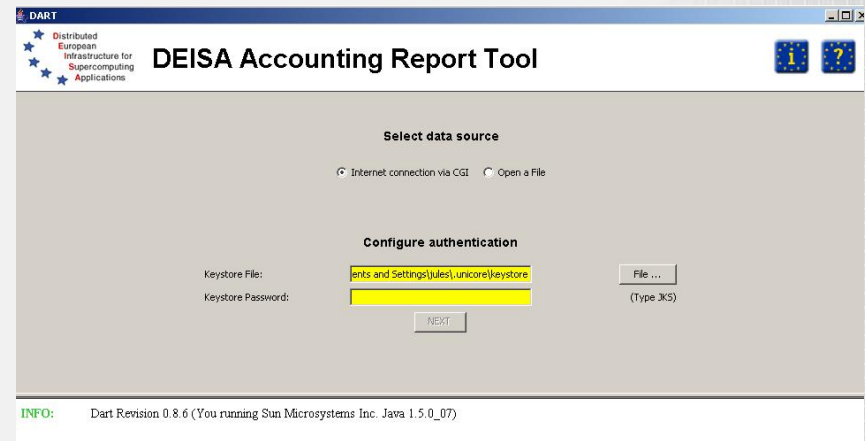
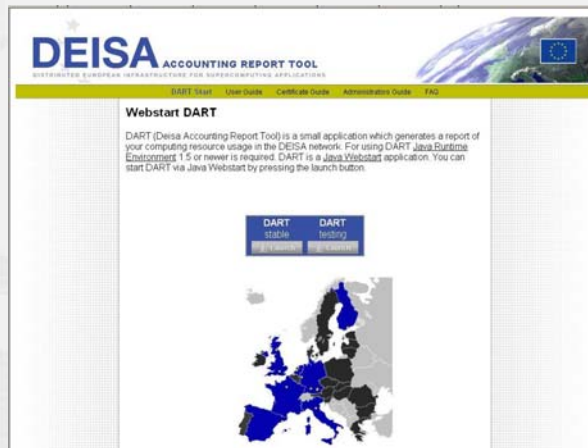
Client tool



DART = DEISA Accounting Reporting Tool

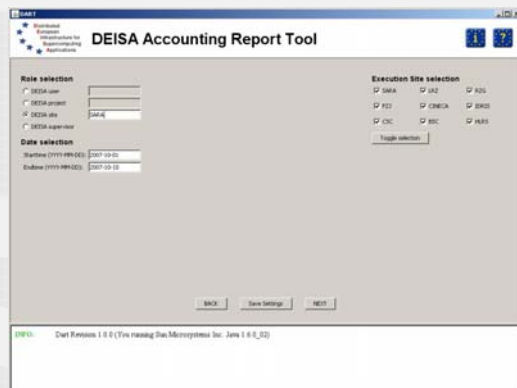
- GUI based client for access of the data
- Connects and processes accounting data from all sites simultaneously
- Java WebStart application, so always up to date and no local configuration needed, e.g. the URLs of the information servers.
- Output displays CPU hours used on the system and normalized values (for comparison between different systems).

DART start up



- <http://register.matrix.sara.nl/deisa/DART/>



- Java Keystore selection




- Selection can be made for
 - Which role: user, project, site or supervisor
 - Which sites must provide data
 - Which period?

Output for user

DART



DEISA Accounting Report Tool

New Report

Save Settings

Export

Startdate: 2006-09-01
Enddate: 2007-06-25

Total | October 2006 | November 2006 | May 2007

Project	User	Site / Machine	Jobs	Cpu Time (norm) [h]	Cpu Time [h]	Job Time (norm) [h]	Job Time [h]
ALL	ALL	SUMMARY	4	0,00		0,08	
staff	ALL	SUMMARY	4	0,00		0,08	
	Jules Wolfrat (sar00005)	CNE / SP5	1	0,00	0,00	0,03	0,02
	Jules Wolfrat (sar00005)	IDR / ZAHIR	1	0,00	0,00	0,02	0,02
	Jules Wolfrat (sar00005)	RZG / RZG SP4	1	0,00	0,00	0,01	0,02
	Jules Wolfrat (sar00005)	SARA / ASTER	1	0,00	0,00	0,02	0,02

INFO: Dart Revision 0.8.6 (You running Sun Microsystems Inc. Java 1.5.0_07)

INFO: Retrieve data from <https://deisa-accounting.hlr.de/cgi-bin/accounting>

INFO: Retrieve data from <https://deisacc.zam.kfa-juelich.de/cgi-bin/accounting>

INFO: Retrieve data from <https://deisa-acct.idris.fr:12443/cgi-bin/accounting>

INFO: Retrieve data from <https://ranta.csc.fi/cgi-bin/accounting>

INFO: Retrieve data from <https://deisa-acct.cineca.it:12443/cgi-bin/accounting>

INFO: Retrieve data from <https://deisap.sara.nl/cgi-bin/accounting>

INFO: Retrieve data from <https://unigate.rzg.mpg.de/cgi-bin/accounting>

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