



Enabling Grids for E-science

DATAMAT role and achievements in EGEE

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EGEE 2nd EU Review

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1. DATAMAT in the DoW
2. Work performed by DATAMAT inside the EGEE project
3. The financial status of DATAMAT in EGEE
4. DATAMAT plans on Grid and EGEE exploitation
5. Conclusions



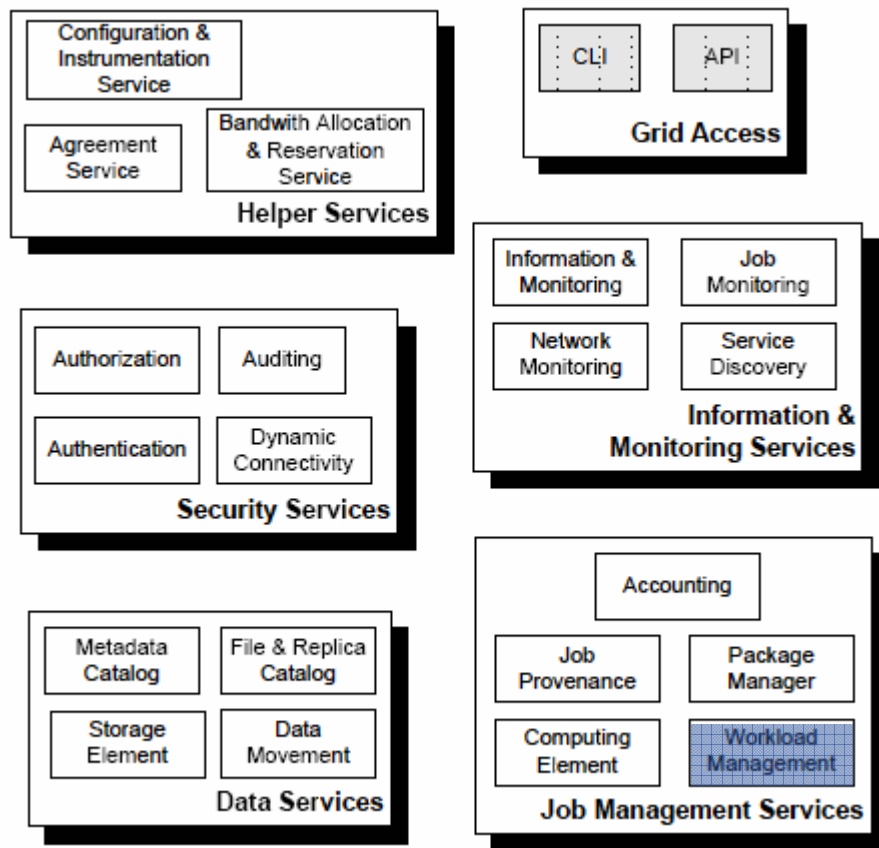
- **DATAMAT main activity is in the frame of JRA1**
- **DoW for JRA1 says:**

“The objective of the Middleware Engineering and Integration Research Activity is to provide robust middleware components, deployable on several platforms and operating systems [...] The evolution of such a set of middleware components towards a Service Oriented Architecture (SOA) adopting emerging standards [...] is an important goal of this activity.”

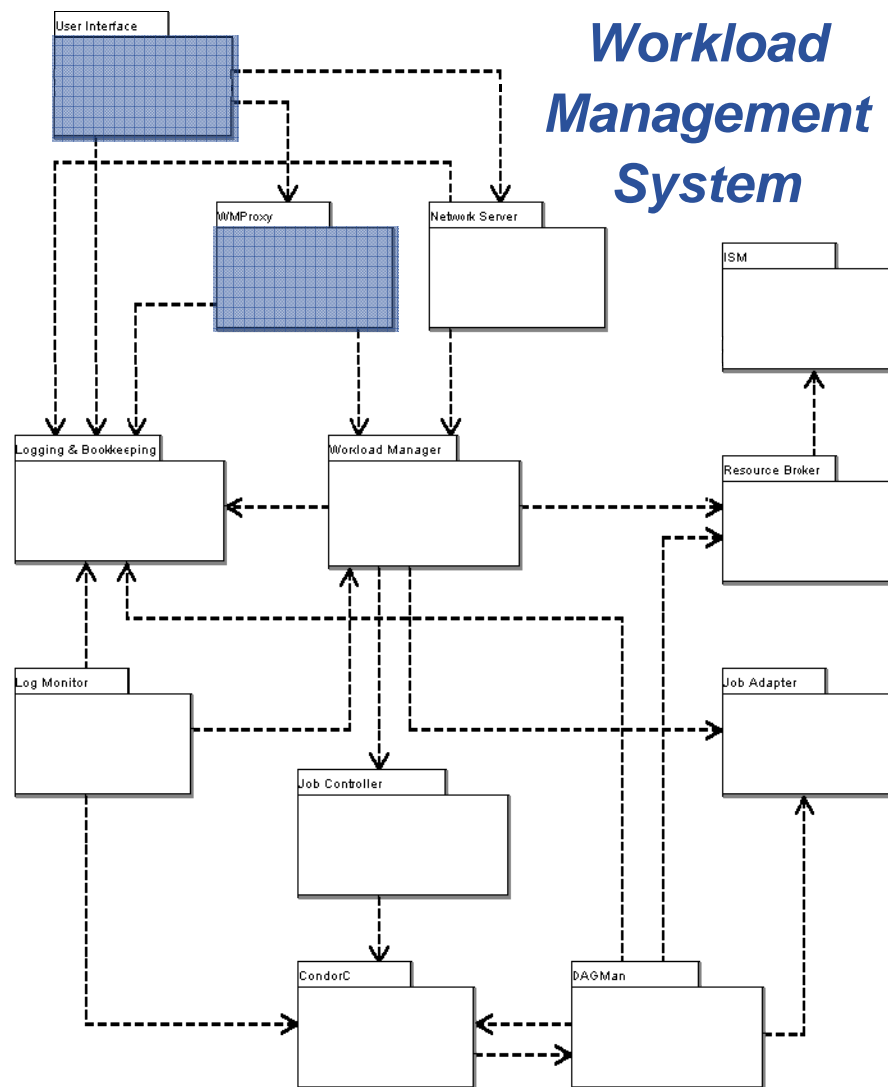
 - DATAMAT planned activities part of Resource Brokering and Accounting, in the frame of IT/CZ Cluster
 - DATAMAT planned resources: 6 FTE's
 - DATAMAT planned costs: 1.182 MEuro (1.176 MEuro for JRA1)

DATAMAT main task: to provide the interfaces to WMS

- User Interface (CLI and GUI)
- API's
- WMPProxy, the WS interface of WMS



gLite Services



2. Work performed (cont'd)

- **Participation to detailed design of WMS software**
- **Design and implementation of the Web Services based interface to WMS (a.k.a. WMPProxy)**
- **Design and development of client tools through the legacy interfaces of WMS and LB and through the WMPProxy (CLI, GUI, API)**
- **Specification of the Job Description Language (JDL) and development of its manipulation library**
- **Second line support to LCG project for problems on the UI and JDL**
- **IT/CZ Cluster Documentation Management**
- **IT/CZ representative in the PTF (Fabrizio Pacini)**
- **Deputy IT/CZ Cluster manager (Stefano Beco)**

2. Work performed (cont'd)

- **Federico Rossi is member since the beginning of the Industry Forum Steering Committee**
 - Fully unfunded activities
 - Very useful to have a two-way liaison with the project and with other IT Companies
 - To push some “industrial requirements” in the project
 - To get common views and potential EGEE exploitation paths with other IF SC members

- **Effort:**
 - Mainly in line with plans (~93 pm's deployed up to M18, 6-7 FTE's since M12)
 - Plans for 7 to 6 (maybe 5 at the very end) FTE's until the end
- **Travels:**
 - About 4% of total costs up to M18
 - Plans for about 4% of remaining costs until the end
- **Money:**
 - 801.2 KEuro spent for RTD up to M18 (at 2004 rates)
 - 350-400 KEuro planned for RTD until the end (at 2005 rates)
- **In one word: practical targeted work done for EGEE within planned time, effort and budget constraints**

DATAMAT Overview

- **We are an Italian leading group in the supply of ICT solutions with 30+ years experience:**
 - ~1,500 highly qualified employees (end 2004)
 - 170.9 M€ Sales, 28.3 M€ EBITDA (FY2004)
 - **Our mission is to supply ICT solutions (products, systems and integrated services) in specific segments of vertical markets**
 - Bank, Insurance and Finance
 - Public Administration and Healthcare
 - Telecommunications, Media and Utilities
 - Defence, Space & Environment
 - Industry
- leveraging on:**
- strong application expertise (knowledge of client primary processes)
 - strong technical and technological competencies (“state-of-the-art”)
 - management and organizational capabilities in complex and high economic value contracts

Why DATAMAT in Grid?

- Our traditional focus is on **innovation**, with a long record of international R&D projects followed by successful commercial **exploitation**.
- We perceived Grid as one of the most promising **novelties** for the ICT market, enabling **distributed applications**, and emerging scenario such as **e-collaboration**.
- In 2000 we decided to participate in **DataGRID**, the first large Grid Project in Europe, to acquire the specific **knowledge** of technology and to understand its potential **business** return in terms of application and services deployment...
- ... and in the following years to other European outstanding initiatives:
 - **CrossGRID (F2 Unit)**
 - **EGEE (F3 Unit)**
 - **AKoGriMo (F2 Unit)**
 - **NextGRID (F2 Unit)**

Which strategy behind?

- Strong communication effort
 - IPO Oct. 2001
 - Several times on specialised press / magazines as “opinion leader”

- Technology Transfer cross-markets

- NEW!!!: DATAMAT is from last October a Finmeccanica company
 - Largest Italian AeroSpace & Defence Group
 - Human resources: >56,700
 - Industrial sectors:
 - *Aeronautics (Aircraft, Helicopters)*
 - *Space (Satellite, Ground Segment)*
 - *Transport (Trains, Railways, Underground)*
 - *Defence (Sensors, Systems)*
 - *Communications*

Preliminary Results

- Italian Reference Company for Grid
 - Italian Rep’s of main IT Vendors (IBM, HP, SUN, Oracle)
 - also through Industry Forum relationship
 - partnership on future initiatives (under discussion)
 - PRISMA*Grid (co-funding MIUR)
 - “Grid for industry”
 - Following c-OMEGA “initiative” with INFN et al.
 - Strong participation of Finmeccanica Companies
 - Other prospects (e.g. banks: MPS, BAV)

- European Space Agency Reference Company for Grid
 - SpaceGRID (800K€)
 - THE VOICE (550 K€)
 - Grid support to ESRIN (260 K€)
 - GDCD (500 K€)

use of EGEE
 use of EGEE
 potential use of EGEE

Subco’s = largest space industries!

Strategic View

- EGEE = “Operational grid”
 - **M/W is available for deployment**
 - **Already being used in ESA**
 - **Infrastructure good enough for industrial test-bedding and demonstration**
 - There are issues like **Security; Licensing; Legacy; Software maturity, and reliability; Algorithms and applications “gridification”; Standards that hinder the full industry take up of grids**
 - **But this do not prevent to start experiments/prototype with industries using grids, maybe in “closed and well known environments”**
 - **Experiments can bring the industry take up forward, act as catalyst of new interests and push for solving above issues (virtuous cycle)**
- NEXTGRID + AKOGRIMO = “Next grid”
 - **E-business**
 - **SLA, QoS,**
 - **Dynamic and transient VO’s,**
 - **Semantic workflows, ...**
 - **Mobility**
 - **large base of users,**
 - **mobile Internet infrastructures based on IPv6,**
 - **knowledge-related and semantics-driven services, ...**

- What is DATAMAT **getting from** the project?
 - **Technological know-how**
 - **Return on image**
 - **Training / knowledge**
 - **New positioning on the ICT market**
 - **References**
- What is DATAMAT **bringing into** the project?
 - **Sound industrial ICT approach**
 - **Complex systems development know-how**
 - **Visibility of EGEE in the industrial sector**
 - **Perspective use of gLite in industrial applications**

fully supporting our business strategy

consultancy -> application enabling -> application development -> integration



Enabling Grids for E-scienceE

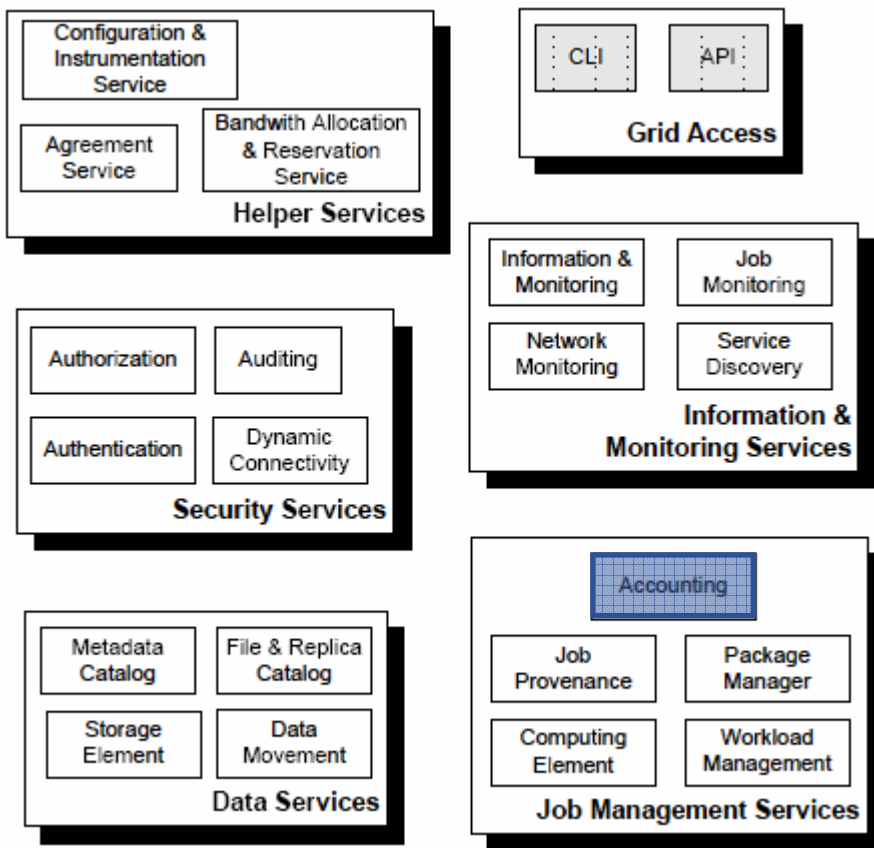
Questions and Answers



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INFSO-RI-508833



gLite Services

**Accounting
Guardian Angel**
— DGAS Unit Test

2. Work performed (cont'd)

- **Participation to detailed design of WMS software**
- **Design and development of client tools for job submission, monitoring and control through the legacy interfaces (API) of WMS and LB:**
 - Command line interface (Python)
 - API (C++, Java)
 - GUI (Java)
- **Design and implementation of the Web Services based interface to WMS (a.k.a. WMPProxy). This encompasses:**
 - Definition of the WMPProxy Service WSDL description
 - Development of WMPProxy Service including
 - Incoming requests management
 - Interface to the WM Task Queue
 - Support for bulk submission and shared job sandboxes

2. Work performed (cont'd)

- **Development of client tools for job submission and control through the WMPProxy**
 - Command line interface (C++)
 - API (C++, Java, Python)
- **Specification of the Job Description Language (JDL) and development of the library for programmatic generation and manipulation of JDL requests**
- **Second line support to LCG project for problems on the UI and JDL**
- **IT/CZ Cluster Documentation Management**

TRAVEL AND SUBSISTENCE

	NAME (4)	DESTINATION (City / Country)	PURPOSE OF TRAVEL	Amount in local currency
PI	Stefano Beco	Cork (IRL)	EGEE Kick Off Conference, April 19-22, 2004	1,691.08
	Fabrizio Pacini	Cork (IRL)	EGEE Kick Off Conference, April 19-22, 2004	1,834.08
	Fabrizio Pacini	Milan (IT)	IT/CZ Cluster Meeting, May 3-4, 2004	660.73
	Fabrizio Pacini	Milan (IT)	IT/CZ Cluster Meeting, June 7-9, 2004	728.83
Bec	Giuseppe Avellino	Milan (IT)	IT/CZ Cluster Meeting, June 7-9, 2004	896.56
Grat	Fabrizio Pacini	CERN (CH)	PTF Meeting, June 17, 2004	1,099.85
Bor	Fabrizio Pacini	RAL (UK)	JRA1 All-hands Meeting, June 28-30, 2004	812.86
Pac	Giuseppe Avellino	RAL (UK)	JRA1 All-hands Meeting, June 28-30, 2004	618.78
Par	Fabrizio Pacini	Milan (IT)	IT/CZ Cluster Meeting, July 19-20, 2004	477.53
Ten	Alessandro Maraschini	Milan (IT)	IT/CZ Cluster Meeting, July 19-20, 2004	414.77
Av	Fabrizio Pacini	Milan (IT)	IT/CZ Cluster Meeting, September 23-24, 2004	739.53
Ma	Fabrizio Pacini	CERN (CH)	All Activity and PTF Meetings, September 13-14, 2004	1,287.02
TO	Fabrizio Pacini	CERN (CH)	PTF Meeting, October 14, 2004	764.23
	Giuseppe Avellino	Turin (IT)	IT/CZ Cluster Meeting, November 4-5, 2004	589.80
	Fabrizio Pacini	Turin (IT)	IT/CZ Cluster Meeting, November 4-5, 2004	603.56
	Alessandro Maraschini	Padua (IT)	JRA1 All-hands Meeting, November 15-17, 2004	520.81
	Fabrizio Pacini	Padua (IT)	JRA1 All-hands Meeting + Design Meeting, November 15-18, 2004	725.30
	Fabrizio Pacini	The Hague (NL)	RI Concertation + EGEE 2nd Conference, November 22-26, 2004	1,515.56
	Stefano Beco	The Hague (NL)	RI Concertation + EGEE 2nd Conference, November 22-26, 2004	1,694.86
	Fabrizio Pacini	Milan (IT)	IT/CZ Cluster Meeting, December 14-15, 2004	581.93
	TOTAL TRAVEL AND SUBSISTENCE			18,257.67

- **Effort:**
 - ~43 pm's deployed (~4.8 FTE's vs. 6 FTE): 79%
 - Core team from DataGRID
 - Some on spot support
 - Ramp up effect
- **Travels**
 - ~18.3 KEuro, 4.8% of stated costs
 - 2 Main Conferences
 - Focussed participation, not broad and indistinct, to save money for “actual work”
- **Money**
 - 377.5 KEuro spent vs. 441 KEuro: 85%

- **Effort:**
 - ~50 pm's deployed (~5.6 FTE's vs. 6 FTE): 93%
 - Illness/accidents during first quarter
 - Since April 2005: 6 to 7 FTE's
- **Travels**
 - ~12.8 KEuro, 3% of stated costs
 - Focussed participation, not broad and indistinct, to save money for “actual work”
- **Money**
 - 423.7 KEuro provisionally spent (2004 rates) for RTD vs. 441 KEuro: 96%
 - 5 KEuro spent for Audit Certificate (83% of allocated budget)

- **Effort:**
 - ~93 pm's deployed (~5.2 FTE's vs. 6 FTE): 86%
- **Travels**
 - ~30.1 KEuro, 3.8% of stated costs
- **Money**
 - 801.2 KEuro spent for RTD vs. 882 KEuro: 91%
 - 5 KEuro spent for Audit Certificate (83% of allocated budget)

- **Effort:**
 - 7 to 6 (maybe 5 at the very end) FTE's
- **Travels**
 - 10-12 KEuro
- **Money**
 - 350-400 KEuro for RTD (2005 rates)
 - 5 KEuro for Audit Certificate

TRAVEL AND SUBSISTENCE

	NAME (4)	DESTINATION (City / Country)	PURPOSE OF TRAVEL	Amount in local currency
P	Alessandro Maraschini	Catania, I	JRA1 IT-CZ MEETING, 24-27/01/2005	824.15
	Fabrizio Pacini	Catania, I	JRA1 IT-CZ MEETING, 24-27/01/2005	909.20
	Fabrizio Pacini	Milano, I	IT/CZ Meeting, 07-08/03/2005	726.53
Bec	Stefano Beco	Athens, GR	3rd EGEE CONFERENCE, 18-22/04/2005	1,388.29
Sca	Fabrizio Pacini	Athens, GR	3rd EGEE CONFERENCE, 18-22/04/2005	1,418.30
Pac	Giuseppe Avellino	Bologna, I	JRA1 IT-CZ MEETING, 12-13/05/2005	648.58
Par	Fabrizio Pacini	Bologna, I	JRA1 IT-CZ MEETING, 12-13/05/2005	656.04
Sot	Fabrizio Pacini	Geneve, CH	PTF MEETING, 26-27/05/2005	829.59
Av	Giuseppe Avellino	Brno, CZ	JRA1 All Hands Meeting, 19-22/06/2005	1,533.93
Ma	Fabrizio Pacini	Brno, CZ	JRA1 All Hands Meeting, 19-22/06/2005	1,649.16
Ca	Fabrizio Pacini	Bratislava, SK	ESR Tutorial, 27-29/06/2005	1,238.61
TO	Stefano Beco	Geneve, CH	All Activity Meeting, 05/07/2005	955.20
TOTAL TRAVEL AND SUBSISTENCE				12,777.58

SUBCONTRACTING

SUBCONTRACTORS	DESCRIPTION	Amount in local currency
RECONTA Ernst&Young	Audit Certificate P1, January 2005	5,000.00
TOTAL SUBCONTRACTING		5,000.00

- **The collaboration with research institutions, for example the computer scientists within the High Energy Physics community, is extremely profitable.**
 - **The cross-fertilization from mixing different backgrounds allowed our teams to improve:**
 - Flexibility
 - Teamwork
 - Openness to innovative ideas
- and to transfer our traditional development culture in terms of:**
- Structured approach
 - Consolidated methodologies for analysis and design
 - Tight project management (resource allocation, planning, ...).