



Enabling Grids for  
E-science in Europe

<http://cern.ch/egee-ira1>

LCG SC2, 6<sup>th</sup> June 2004

# EGEE Middleware

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# Requirements

- HEPICAL, HEPICAL II
- ARDA RTAG
- Data Challenges
- AWG requirements from EDG WP10
- BioMedical and Applications in General
  - Formal EGEE Milestones & Deliverables
    - MNA4.1: Definition of requirements from applications and first version of associated test suite:  
<https://edms.cern.ch/file/474424/4>
    - DNA4.1: Definition of Common Application Interface and Planning Document
- Operations
  - No formal process foreseen in TA, but meetings & documentation being gathered
  - **Requirement table:**  
<https://edms.cern.ch/document/456865>
  - **Meeting minutes:**  
<https://edms.cern.ch/document/451069>

# Work Plan

- Monthly Design Team Meetings
  - Defining and agreeing the Middleware building blocks
  - Discusses components and how they need to be adapted to fit in the prototype
  - Validating the implemented components and priorities with ARDA team
    - Will use the prototype middleware to deliver 4 end to end prototypes of Analysis
    - First ARDA Workshop on June 21-23, 2004
    - Middleware/Applications meeting on July 14-16, 2004
  - Evolving components as Web services as needed
- The prototype is the starting point and a vehicle to define the EGEE Middleware
  - With rapid release cycles (1-2 months)
  - Agreeing on priorities with Applications and Operations
  - Augmented with two deliverables:
    - Architecture document (PM3)
    - Design document (PM5)
  - And a process to define, implement, feedback
- “Weekly” meetings on status of the prototype
- In parallel, Testing & Integration activities have started
  - And are now using the prototype software
  - SCM & testing plans are being developed

# EGEE Milestones

Milestone	Month	Date	Description
MJRA1.1	M3	06-2004	Tools for middleware engineering and integration deployed
MJRA1.2	M3	06-2004	Software cluster development and testing infrastructure available
MJRA1.3	M5	08-2004	Integration and testing infrastructure in place including test plans (Rel 1)
MJRA1.4	M9	12-2004	Software for the Release Candidate 1
MJRA1.5	M10	01-2005	Integrated Release Candidate 1 enters testing and validation period (Rel 1)
MJRA1.6	M18	09-2005	Test plan for core Grid components and overall Integration (Rel 2)
MJRA1.7	M19	10-2005	Software for the second release candidate available
MJRA1.8	M20	11-2005	Release Candidate 2 enters testing and validation period (Rel 2)

# EGEE Deliverables

Deliverable	Month	Date	Nature	Description
DJRA1.1	M3	06-2004	(Document)	Architecture and Planning (Release 1)
DJRA1.2	M5	08-2004	(Document)	Design of grid services (Release 1)
DJRA1.3	M12	03-2005	(Software)	Software and associated documentation (Release 1)
DJRA1.4	M14	05-2005	(Document)	Architecture and Planning (Release 2)
DJRA1.5	M15	06-2005	(Document)	Design of grid services (Release 2)
DJRA1.6	M21	01-2006	(Software)	Software and associated documentation (Release 2)
DJRA1.7	M24	03-2006	(Document)	Final report

# LCG Milestones

WBS	EGEE	Comment	Name	Date_MS	MS_Done
1.5		—	Middleware		
1.3.4			LCG - EGEE Coordination		
1.3.4.1			EGEE senior management appointed	15-07-03	15-07-03
1.3.4.2			Technical design team established	01-09-03	04-12-03
1.3.4.8		i_jan04	EGEE Middleware people hired	29-02-04	23-03-04
1.3.4.9		i_jan04	EGEE Middleware execution plan available	29-02-04	17-03-04
1.3.4.10		i_jan04	EGEE Contract signed	01-04-04	01-04-04
1.5.2.6	None	i_apr04	First version of prototype available for experiments	16-06-04	16-05-04
1.5.2.6	MJRA1.1	i_apr04	Development and integration tools deployed	30-06-04	
1.5.2.7	MJRA1.2	i_apr04	Software cluster development & testing infrastructure in place	30-06-04	
1.5.2.8	DJRA1.1	i_apr04	Architecture & Planning Document for release candidate 1	30-06-04	
1.5.2.9	MJRA1.3	i_apr04	Integration & Testing infrastructure in place; test plan	31-08-04	
1.5.2.10	DJRA1.2	i_apr04	Grid Services design document for release candidate 1	31-08-04	
1.5.2.12	None	i_apr04	Second version of prototype available for experiments	31-08-04	
1.5.2.11	MJRA1.4	i_apr04	Release Candidate 1	31-12-04	

# Manpower

Partner	Activity	Funded	Unfunded	Total	TA
<b>CERN</b>	Testing	3	1	4	7
	Integration	4		4	9
	Data management	5	1	6	10
	Prototype	2		2	0
	Management	1	2	3	3
<i>Subtotal</i>		15	4	19	29
<b>CNRS</b>	Tools	1		1	2
<b>IT</b>	Resource Access/Brokering				
	Accounting	14	8	22	
<b>CZ</b>	Logging & Bookkeeping	4	0	4	
<i>Subtotal</i>				26	22
<b>UK</b>	Information Services	8	1	9	8
<b>US</b>		0	N/A	N/A	
<b>Nordic</b>	Security	5	6	11	11
<b>Total</b>				66	72

# Open Questions/Issues

- Will prototype functionality be enough for ARDA people?
- Commitment for prototyping from BioMedical applications
- Participation of (part of) US partners
- Level of commitment of some partners to short term goals
- Internal JRA1 organization
  - Services not foreseen in the TA
  - Operational support for the prototype machines
- How to turn the prototype into a production quality release in a short time scale
  - Suitable for Operations, i.e. at least as good as LCG-2
- Involvement in the feedback from Data Challenges
- Are Web services sufficient? What is the role of WSRF?
- Overlap of work in some areas?
  - E.g. Data Challenges issues and Data management
- Licensing
  - Currently prevents deploying outside of JRA1



# Achievements

- Design Team
  - With members from AliEn, EDG, VDT (all EGEE)
  - Monthly meeting
- Working Middleware document  
<https://edms.cern.ch/document/458972>
- Draft Software Configuration & management Plan  
<https://edms.cern.ch/document/446241>
- Draft Release Plan  
<https://edms.cern.ch/document/468699>
- Draft Architecture Document  
<http://jira1mw.cvs.cern.ch:8180/cgi-bin/jira1mw.cgi/org.egee.jra1.deliverables/DJRA1.1/>
- Delivered a “working” prototype
  - Minimal functionality but working
  - CERN & University of Wisconsin/Madison
  - Components being migrated to the SCM
  - Detailed planning available at <https://edms.cern.ch/document/457150/>
- Defect Tracking System
  - Savannah: <https://savannah.cern.ch/bugs/?group=jira1mdw>
- CVS repository: <http://jira1mw.cvs.cern.ch:8180/cgi-bin/jira1mw.cgi/>

# Prototype Status

- A Prototype Middleware on a testbed consisting of
  - AliEn “shell”
  - Job submission:
    - Alien CE->Condor-G->blaph->PBS/Condor
    - Globus Gatekeeper
  - Data Management
    - AliEn File catalog
      - Soapification of the FC
    - Castor & D-Cache SE with SRM
    - gridFTP for transfers
    - AliEn FTD
    - Aiiod/GFal investigations
    - RLS (EDG)
      - Perl RLS Soap interface for File Catalog integration
      - Not used yet
  - Security
    - VOMS for certificate handling/SE gridmap files (NIKHEF)
    - MyProxy for certificate delegation in GAS
  - GAS (Grid Access Service)
    - Prototype with a few file cataloging functions
  - R-GMA
    - With new API; not integrated yet

# Software Configuration & Management Plan

- A master Software Configuration Plan is being finalized now
- Compliant with internationally agreed standards (ISO 10007-2003 E, IEEE SCM Guidelines series)
- Most EGEE stakeholders have already been involved in the process to make sure everybody is aware of, contributes to and uses the plan
- An EGEE JRA1 Developer's Guide will follow shortly in collaboration with JRA2 (Quality Assurance) based on the SCM Plan
- SCM Contents
  - Configuration and Version Control
  - Build Systems
  - Release Process
  - Other Configuration and Change Control Procedures

- <https://edms.cern.ch/document/446241>

# Constraints

- Hard constraints from EU on deliverables and milestones
- LCG timing
- Trying to make a place for every Middleware providers
- Partners work plans
- Early delivery to ARDA (and Biomedicals)
  
- So many meetings to participate to ...

# EGEE-LCG Relations, Deliverables

- Quarterly reports aligned
- Deliverables/Milestones aligned (by construction)
- EGEE Operations Manager is the LCG Deployment Manager
- EGEE Middleware Manager is the LCG Middleware manager
- Operations & Middleware managers are in both PEB's

# Concerns & Risks (I)

- How to ensure right level of commitment by all partners
  - In particular when they are not directly funded
- How to avoid independent development lines
  - LCG and EGEE both “develop” middleware
- How to ensure rapid development cycles
  - Needed to validate directions taken
- Timescales
  - LCG need something by the end of the year with interim releases starting from the summer
- Biomedical (and others) requirements
  - Security requirements may complicate considerably overall architecture
- Building prototypes from disparate building blocks
  - With requirements of production quality software process
  - Different Security Models
- Build an effective team out of disparate resources

## Concerns & Risks (II)

- **Convergence with standards and timescales**
  - WSRF not yet approved, LCG needs to take decision in 2005
- **Keeping personnel towards end of project**
- **Coexistence with multiple Grids**
  - Seems OK for Job Submission, more tricky for data
- **Aggressive timelines may affect quality**
  - Software Engineering and in particular Testing & Integration
- **Multiple reporting lines, coordination meetings, etc...**
  - Generating overheads

# Status Report Q1 2004

- EGEE Middleware staff hiring (mainly at CERN)
- Continue the work initiated in December on the design of new Middleware in the context of the ARDA RTAG and prepare a prototype
- Preparation and participation in LCG Workshop
- Prepare the start-up of the EGEE project and the kick-off conference in Cork, Ireland
- Resources:
  - 4 FTE's spread over 7 people

WBS	Unique	Name	Date	Done
1.5		Middleware		
1.3.4		LCG - EGEE Coordination		
1.3.4.8	3.1659	EGEE Middleware people hired	29-02-2004	23-03-2004
1.3.4.9	3.1660	EGEE Middleware execution plan available	29-02-2004	17-03-2004
1.3.4.10	3.1661	EGEE Contract signed	01-04-2004	01-04-2004



# Next Status Report

WBS	Unique	Name	Date
1.5		<b>Middleware</b>	
1.5.2.6	5.1912	First version of prototype available for experiments	16-06-2004
1.5.2.6	5.1889	Development and integration tools deployed	30-06-2004
1.5.2.7	5.1888	Software cluster development & testing infrastructure in place	30-06-2004
1.5.2.8	5.1887	Architecture & Planning Document for release candidate 1	30-06-2004
1.5.2.9	5.1886	Integration & Testing infrastructure in place; test plan	31-08-2004
1.5.2.10	5.1885	Grid Services design document for release candidate 1	31-08-2004
1.5.2.12	5.1913	Second version of prototype available for experiments	31-08-2004
1.5.2.11	5.1884	Release Candidate 1	31-12-2004

# Next Status Report

- Software Configuration & Management Plan
- Release Plan
- Architecture Document
- First version of the Middleware Prototype
  - Initial feedback from ARDA on Middleware prototype
  - Workplan from feedback
- CVS repository
- Automated build system
- Defect tracking system
- Quality Assurance Plan

# Summary

- Although there certainly are issues, concerns and risks, an early version of the prototype has been released
  - Despite the over aggressive timescales
  - Including components from AliEn, EDG, VDT
  - To be used as a starting point and a vehicle to define the EGEE Middleware
  - With a process based on feedback from ARDA and Operations thru a well identified, focused design team
- From a formal deliverable/milestone point of view
  - EU roadmap to deliverables seems on track
  - Including Software Engineering processes
    - Quality Plans, Test plans, build systems, etc...
- But we need to close the first loop with ARDA & Bio
  - Scheduled later this month