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Executive Summary

This document gives an overview of the achievements of the JRA3 Infrastructure Integration activity in the first year of the OMII–Europe project (May 2006 - April 2007) and an update of the plans for the following year. Overall, the JRA3 activity is coordinated by KTH. The objective of the JRA3 Infrastructure Integration Activity is to initiate tighter integration of Grid infrastructures than would be achieved merely through the adoption of common services supporting inter-working of different Grid infrastructures; for example, increasing the respective middlewares usability by enabling a much more flexible approach to Virtual Organizations (VOs). The work of the JRA3 activity is structured as two tasks:

- Common Security Infrastructure (Task1)
- Infrastructure Integration (Task2)

This deliverable gives the overall report of JRA3; the combination of the in Task1 and Task2. The details of work done in Task1 of JRA3 are reported in D:JRA3.3. For Task2 the details are given in the deliverable D:JRA3.5.

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1. Overview

The work of the JRA3 activity is structured as two tasks:

- Common Security Infrastructure (Task1)
- Infrastructure Integration (Task2)

The Common Security Infrastructure activity (Task1), lead by KTH, strives to harmonise and define a core set of security features that will enable users to make use of multiple middlewares with a single underlying security infrastructure. Special focus is on a closer integration of UNICORE and gLite—to facilitate job execution on UNICORE of gLite submitted jobs—although efforts are also directed to address GLOBUS and CROWNGrid interoperability. The purpose of Infrastructure Integration activity (Task2), lead by FZJ, is to establish and test interoperability among the different Grid middleware platforms within OMII–Europe.

1.1. Progress in Year 1

During the first year we have defined a common security technology base, starting with an initial set of standards that are widely adopted, together with an emerging specification from OGF (M:JRA3.1). We have also implemented a solution for credential provisioning for UNICORE based on proxy certificates (M:JRA3.2). In JRA3-Task 2 we are bringing all the software components, reengineered within OMII–Europe, together into one multi-platform Grid infrastructure (Milestone M:JRA3.4). The deliverables and milestones for during the first year are

No.	Title	Date	Completed
D:JRA3.1	First report on the Infrastructure Integration Activity	M12	M12
D:JRA3.3	First yearly report on the Common security task	M12	M12
D:JRA3.5	First report on all the sub-tasks of the Infrastructure Integration Activity	M12	M12
M:JRA3.1	Definition of a common security technology base	M12	M12
M:JRA3.2	Credential provisioning in UNICORE	M12	M12
M:JRA3.4	First prototype of the multi-platform Grid infrastructure	M12	M12

A roadmap for the integration of these components along different integration phases has been developed. Since several months, all integration phases according to the roadmap have been started; the infrastructure already has a lot of components running interoperability tests, even if most JRA 1 components are still in an alpha implementation. To conclude, initial interoperability, using a common security technology base, among the components has been reached in typical deployments.

1.2. Plan for Year 2

For the coming 12 months we plan to update the common security technology base using the experiences gained from the joint efforts of Task1 and Task2 in evolving our initial profile with the second iteration of the multi-platform Grid infrastructure of Task2. In order to reach the final version of the multi-platform Grid infrastructure, we will further cooperate with GIN and the EGEE Middleware Security Group (MWSG). The integration of new security technologies will lead to new interesting and more realistic interoperability scenarios, especially those that raise the demand for delegation mechanisms. The work on a prototype credential management system, that will support both legacy and emerging middleware, is under way and will be completed at the end of M18. To adequately report on the further developments of the common security technology activities we suggest adding one milestone in M22. Milestones and deliverables for the second year are summarized by

No.	Title	Date
D:JRA3.2	2 nd report on the Infrastructure Integration Activity	M24
D:JRA3.4	2 nd yearly report on the Common security task	M24
D:JRA3.6	Second report on all the sub-tasks of the Infrastructure Integration Activity	
M:JRA3.3	Prototype credential managements system	M18
M:JRA3.4	Final version of the multi-platform Grid infrastructure	M24
M:JRA3.6	2 nd iteration of common security technology base (new)	M22

To disseminate our solutions, we plan to participate in the Supercomputing 2007 interoperability demos. We will continue participating in MWSG and as well as the GIN work and give interoperability demonstrations at events such as OGF.

2. Partner interactions

JRA3 aims at a simulation of a future multi-platform Grid infrastructure to enable the developers of JRA1 to test their components in more realistic Grid deployments. Following the description of work, the efforts focuses mostly on interoperability of UNICORE and gLite (EGEE) although resources have been allocated to address GLOBUS and CROWN as well. Due do the nature of this work, there is a very close symbiosis of the two tasks in JRA3 and JRA1.

The SA2 activity is providing standard compliance tests in terms of compliance specification for specific components. Leveraging this work, JRA3 will be testing compliance among different sets of components typically used within production Grids today (*e.g.* VOMS authorization with job submission). We plan to collaborate with SA2 to update procedures and to show how these and other activities are formally expected to interact. In summary, the interoperability scenarios will address realistic Grid jobs on top of the multi-platform production Grid infrastructure and will include more than one “standalone component” of JRA1.

3. Partners and Efforts

Task1 involves 9.8 staff years over the duration of the project: KTH 3.5 (1.9 funded, 1.6 unfunded), INFN 3.0 (2.0 funded, 1.0 unfunded), FZJ 1.5 (1.5 funded), UILL 0.8 (0.8 unfunded), TU 1.0 (1.0 unfunded). See

Table 1 for details on how the actual effort for Task 1 has been spent during the first year.

Task 2 involves 9.5 staff years, INFN 3.5 (2.5 funded, 1.0 unfunded), FZJ 1.5 (1.5 funded), KTH 1.5 (1.5 unfunded), BU 1.0 (1.0 unfunded), CNIC 1.0 (1.0 unfunded) and TU 1.0 (1.0 unfunded) over the duration of the project. See

Table 2 for details on how the actual effort for Task 2 has been spent during the first year.

Org.	INFN		FJZ		KTH		UILL		TU	
Efforts (F/U)	1.00	0.50	0.75		0.95	0.80		0.40		0.50
May-06	1.00	0.50	0.02		0.00	0.00		0.00		0.00
Jun-06	1.00	0.50	0.44		0.00	0.00		0.00		1.00
Jul-06	1.00	0.50	0.44		0.00	0.00		0.50		0.50
Aug-06	1.00	0.50	0.67		0.77	0.00		0.50		0.50
Sep-06	1.00	0.25	0.24		0.65	0.00		1.50		0.50
Oct-06	1.00	0.00	1.40		1.60	0.00		0.00		0.50
Nov-06	1.00	0.50	1.18		1.08	0.40		0.50		0.50
Dec-06	1.00	0.00	0.64		0.80	0.80		0.50		0.50
Jan-07	1.00	0.50	1.61		0.63	0.63		0.00		0.50
Feb-07	1.00	0.50	1.41		0.98	1.50		0.00		0.00
Mar-07	1.00	0.50	0.79		1.25	1.00		0.00		0.50
Apr-07	1.00	0.50	0.75		1.15	1.60		0.00		0.00
Sum FTE	12.000	4.750	9.584		8.895	5.925		3.500		5.000
Fraction	1.000	0.792	1.065		0.780	0.617		0.729		0.833

Table 1. Overview of efforts of Task 1 during the first project year., in staff months. F/U: funded and unfunded respectively. The fraction is the ratio of actual effort to planned effort over the first 12 months.

INFN brings in EGEE expertise, FZJ brings in UNICORE expertise, KTH and UILL bring in GLOBUS and significant security expertise, BU, CNIC and TU brings in CROWNGrid expertise and represent the needs of CROWNGrid in this task. In October 2006, the Chinese CNIC partner officially left the JRA3–Task 2. This has not presented a serious problem since the collaboration with the JRA1 activity Chinese component exchange is active to include CROWN software within JRA3–Task 2.

During the start-up phase of the project, the task was temporarily coordinated by FZJ until KTH was able to take over this responsibility after initial staff shortage. The handover took place during the month 6 face-to-face meeting in Southampton. KTH has been coordinating the JRA3 activity since then. From

Table 1 and

Table 2 it is clear that all partners are reasonably in-line with the effort they are committed to.

Org.	INFN		KTH		FZJ		BU		CNIC		TU	
Efforts (F/U)	1.25	0.50		0.75	0.75			0.50		0.50		0.50
May-06	1.25	0.50		0.00	0.31			1.50		0.50		0.50
Jun-06	1.25	0.50		0.00	0.59			0.00		0.00		1.00
Jul-06	1.25	0.50		0.00	0.39			0.00		0.15		0.50
Aug-06	1.25	0.50		0.00	0.70			0.00		0.00		0.50
Sep-06	1.25	0.50		0.00	0.25			0.00		0.00		0.50
Oct-06	1.25	0.50		0.00	1.44			0.00				0.50
Nov-06	1.25	0.50		0.75	1.19			0.00				0.50
Dec-06	1.25	0.00		0.65	0.48			0.00				0.50
Jan-07	1.25	0.50		0.75	1.56			0.00				0.50
Feb-07	1.25	0.50		0.75	1.36			0.00				0.50
Mar-07	1.25	0.50		0.75	0.75			0.00				0.50
Apr-07	1.25	0.50		0.75	0.75			0.00				0.50
Sum FTE	15.000	5.500		4.400	9.770			1.500		0.650		6.500
Fraction	1.000	0.917		0.489	1.086			0.250		0.108		1.083

Table 2. Overview of efforts of Task 2 during the first project year, in staff months. F/U: funded and unfunded, respectively. The fraction is the ratio of actual effort to planned effort over the first 12 months.