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Enabling Grids for E-sciencE

Technical Overview

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EGEE 1st EU Review

9-11/02/2005

www.eu-egee.org

Information Society

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This presentation highlights the technical advances made during the first reporting period and shows any deviation from the contractual Description of Work (Technical Annex)

- **Activity Details**
  - Objectives and structure
  - Key deliverables/milestones
  - Major achievements
  - Deviations from TA
- **Summary**

- Objectives: *Create & operate a production quality infrastructure*

    48 partners, approx 45% of total project budget with regional structure

    Builds on the existing LCG infrastructure to provide expanded grid facility for many application domains

- **Status: All 3 deliverables produced and 2 milestones met**

    – DSA1.1: Execution plan for the first 15 months of infrastructure operation

- **Scale of the production service**

    – *April*: ~2000 CPUs over ~ 30 sites (LCG-1 → LCG-2)

    – *now*: ~10000 CPUs over ~ 100 sites

    This is far beyond the project milestone (MSA1.1 Sept'04)

    – Continuous improvements to LCG-2 middleware

        Biggest problems for service are now related to site configuration

- **Set-up of Core Infrastructure Centres (CIC) and Reginal Operations Centres (ROC) as a support structure for 50 Virtual Organisations (VOs)**

- Objectives: ***Ensure EGEE access to network services provided by GEANT and the NRENs to link users, resources and operational management***

  3 partners, approx 1.5% of total project budget

- **Status: All 1 deliverable produced and 2 milestones met**
  – DSA2.1: Survey of application requirements and identification of service classes

- **SA2: Network Resource Provision**
  – TNLC: liaison board with DANTE/NRENS setup
  – Survey of pilot application requirements on networks, initial SLRs and service classes performed
    - GEANT service classes available
    - Bandwidth Allocation & Quality of Service aspects

- Objectives *Network oriented joint research to provide end-to-end services such as*
    - *Network reservation, performance monitoring and diagnostics tools*
    - *Explore links to how Grid resources are organise/allocated*
    - *Investigation of potential impact IPv6 on grids*
  - 5 partners, approx 2.5% of total project budget
  - Tight collaboration with DANTE and the NRENs, especially through future GN2 project and potential network oriented FP6 projects
- **Status: All 2 deliverables produced and 2 milestones met**
  - MJRA4.2 Requirements and use cases for monitoring and diagnostics tools for users, middleware and operations - combined with DSA2.1
  - DJRA4.2: Definition of standardised network measurement query/response interfaces
- **Network performance monitoring – prototype produced**
- New mgmt: Peter Clarke & Kostas Kavoussanakis (Univ. Edin.)

- Objectives: *Identify and support a broad range of applications from diverse domains, starting with the pilot domains: HEP and Biomedical*
  - 20 partners, approx 12.5% of total project budget
- **Status: All 3 deliverables produced and 2 milestones met**
  - DNA4.3.1: EGEE Application migration progress report
- **Pilot applications (HEP, Bio) making heavy use of the grid infrastructures**
  - Large scale usage of production service by LHC experiments for data challenges and initial deployment of 3 Bio applications: CDSS, GPS@, GATE
  - 5 more Bio applications identified and first jobs ran for earth science research
- **GILDA testbed (running LCG-2 mware) has grown in size (14 sites)**
  - Gets new applications up and running, training tool and stepping-stone to production service
  - Currently supporting geophysics (industry), computational chemistry, astro-particle physics with interest from astrophysics, hydrology seismology, grid search engines (GRACE Project), stock market simulators, digital video and ESA

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- **Project Technical Forum established to manage requirements and APIs (WSDL) for the middleware**

- **EGAAP reviewing new application requests**
  - has reviewed 11 application requests and recommended X of which N are deployed on GILDA or production service

- **Mapped-out the details of the "Virtuous cycle"**
  - Explains how the different activities and groups work together to support in new communities/applications

- **ARDA**
  - Evaluating prototype gLite middleware

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- Objectives

    Provide robust, supportable middleware components

    Integrate grid services to provide a consistent functional basis for the EGEE grid infrastructure

    Verify the middleware forms a dependable and scalable infrastructure that meets the needs of a large, diverse eScience user community

    – 5 partners, approx 16% of total project budget

- **Status: All 2 deliverables produced and 4 milestones met**

    – DJRA1.1: Architecture and Planning (release 1)

    – MJRA1.4 Software for the Release Candidate 1

- **Architecture and design of new gLite middleware developed and reviewed by many**

    – **Successive prototypes produced starting May'04 accessible to application people (ARDA) on distributed testbed**

- **Complete code mgmt and build system put in place**

    – **Integration and Testing teams working with gLite releases**

gLite

Lightweight Middleware for Grid Computing

www.glite.org

- Objectives: *Foster the production and delivery of quality Grid software and operations.*

  – 2 partners, approx 2% of total project budget

  – Further resources allocated in other activities

- **Status: All 1 deliverable produced and 1 milestone met**

  – DJRA2.1: Quality Plan for EGEE

- **Procedures defined for all major project tasks**

  – Introduction of customised automated tool for effort counting

- **QAG established and quality plan produced with metrics defined for each activity and for the project as a whole**

  ▪ Project progress, effort, and cost

  ▪ Services provided; Utilisation

  ▪ Middleware

  ▪ Training & induction; dissemination & outreach; International recognition

- **Activities now ensuring they can collect relevant data**

- Objectives *Enable secure operation of a European Grid infrastructure by developing:*
  - *Overall security architecture and framework*
  - *Policies to be adopted by other EGEE activities (middleware, operations etc.)*
  - 5 partners, approx 3% of total project budget
- **Status: 2 deliverables produced and 4 of 5 milestones met**
  - MJRA3.5 (**Secure Credential Storage procedures)** divided into 2 and rescheduled for PM10 and PM15
  - DJRA3.1: **Global security architecture**
- **EU Grid PMA established (lead by EGEE)**
- **Joint Security Policy Group (JSPG) working across Europe and US for security policies, operational security procedures**
  - With LCG, OSG (lead by EGEE)
- **User requirements surveyed & security architecture defined**
- **Closer integration with JRA1 for mware issues**
  - JRA3 sw components follow same process as gLite and initial security recommendations made for mware re-eng
  - Middleware Security Group (MSWG) involves all technical activities
- **Links made to production service with operational procedures and incident handling**

- Objectives: *Disseminate the benefits of the EGEE infrastructure to new user communities*

  - 20 partners, approx 5% of total project budget
- **Status: All 6 deliverables produced and 8 milestones met**
  - DNA2.6.1: **Dissemination progress report**
- **Public and technical websites constantly evolving to expand information available and keep it up to date**
- **Large dissemination effort by partners**
  - presentations, information sheets, newsletters etc.
  - ~ 90 press cuttings, ~ 100 events where EGEE was present
- **2 conferences organised**
  - ~ 300 Cork (April'04), ~ 400 Den Haag (November'04)

NA3: User Training and Induction

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- Objectives: *Develop training programme covering audiences from beginners to advanced users*
  - 22 partners, approx 4% of total project budget
- **Status: All 3 deliverables produced and 3 milestones met**
  - DNA3.3.1: Training Progress report
- **NA3 has been involved in more than 39 training events (including the GGF grid school) across many countries**
  - **Over 1000 people trained**
    - **induction; application developer; advanced; retreats**
  - **Material archive online with ~80 presentations**
- **Strong links made with GILDA testbed and use of GENIUS portal**
  - **Regularly used as part of tutorials**
- **Essential element of the *virtuous cycle* for new communities**
  - **Training is one of the first things new communities need**
- **Process for handling feedback defined**
  - **Helping to improve material and organisation**
- **Roadmap for future event planned**

- Objectives: *forge cooperation with other regions around the world and related grid projects*
    - 9 partners, approx 3% of total project budget
- **Status: All 3 deliverables produced and 1 milestone met**
    - DNA5.1.1/2 eIRG white paper revisions and DNA5.2 roadmap with DEISA and SEE-GRID
- **Relationship with US and Russia has been embodied in the other activities (JRA1, SA1) hence work has concentrated on relations with other EU projects and new regions (Asia, Latin America etc.)**
- *Add list of agreements made*
- *Contributing to organising EU concertation events*

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- **All activities are up-and-running**

- **All milestones and deliverables for the first reporting period have been met/produced**

- **The project has already met the targets set for the first 2 year phase**

Target	Current status	End Year 2	End Year 4
Number of Users	~ 500	≥ 3000	≥ 5000
Respectability (peer reviewed)	23%	≥ 15%	≥ 50%
Breadth (disciplines)	6	≥ 5	≥ 5
Multinational (countries)	27	≥ 15	≥ 15
Multilingual (languages)	5	≥ 4	≥ 8