e-Science 2006
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June 7, 2007

1. Conf. Organization
2. Workshops
3. Main Track Sessions

e-Science 2006 Conference Organization

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Ian Foster, Argonne National Lab; University of Chicago, USA
Peter Sloot, University of Amsterdam, The Netherlands

Scope

1. e-Science & Grid applications in Physics, Biology, Astronomy, Chemistry, Finance, Engineering and Business.
2. Collaborative Technology and Environments
3. Service-Oriented Grid Architectures
4. Problem Solving Environments
5. Application Development Environments
6. Programming Paradigms and Models
7. Resource Management and Scheduling
8. E-science Workflows
9. Sensor Networks and e-Science
10. Virtual Instruments and Data Access Management
11. Grid Economy and Business Models
12. Autonomic and Self-Organizing Grid Networks
13. Security Challenges

Selection

- 166 papers in the Proceedings
  - 1 main track : (60 regular + 23 short + 8 posters) / 160 submitted (37.5% reg. acceptance)
  - 10 workshops : 68 papers (9/10 peer-reviewed)

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Workshops

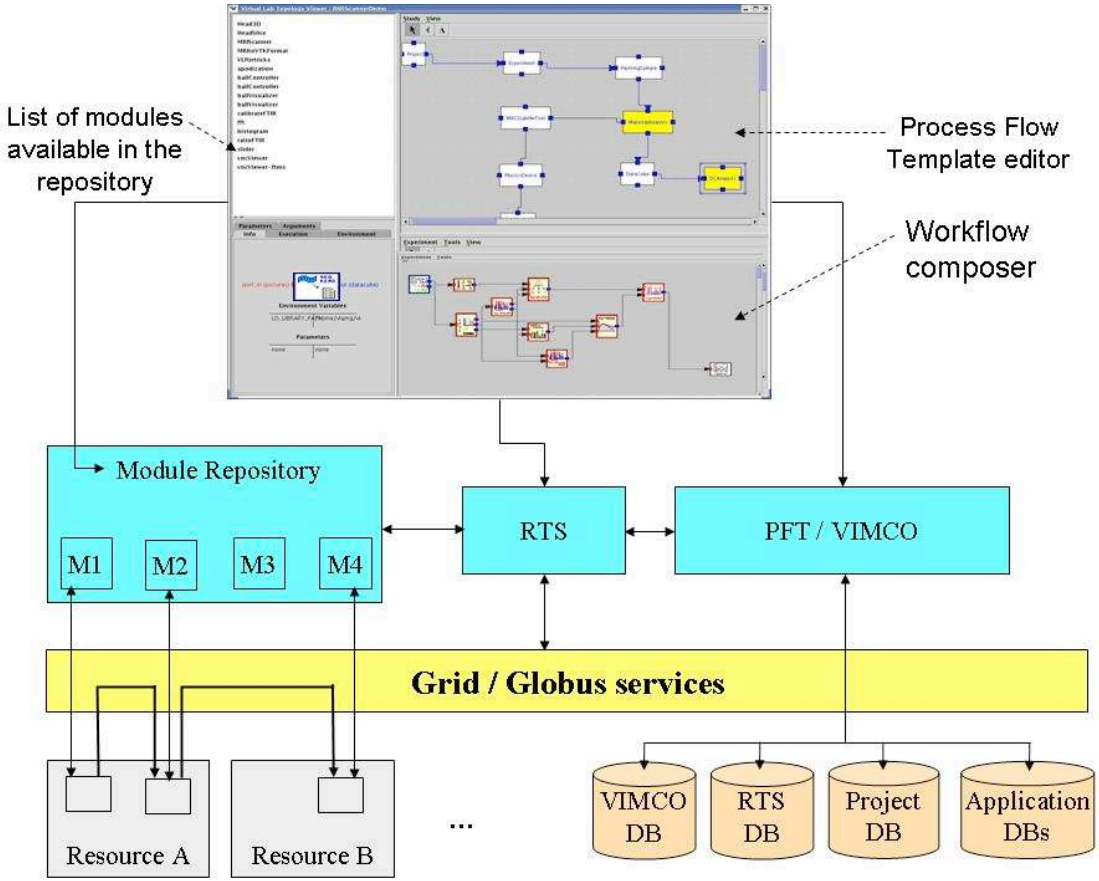
- Innovative and Collaborative Problem Solving Environment (PSE) in Distributed Resources
- Scientific Workflows and Business Workflow Standards in e-Science
- Running Production Grids
- Open Grid Forum
- Biologically-inspired Optimisation Methods for Parallel and Distributed Architectures: Algorithms, Systems and Applications
- Collaborative Remote Laboratories
- Engineering e-Infrastructures for the Benefits of e-Science
- e-Humanities - An Emerging Area of Concern
- e-Science in and Beyond the Classroom: Usability, Practicability and Sensibility HealthGrid

Main Track

1 session = 4-6 papers.

- 1 Session on e-Science Applications
- 3 Sessions on Virtual Organizations
- 1 Session on Frameworks for e-Science and Resource Discovery
- 1 Session on Resource Discovery
- 1 Session on Resource Reservation and Virtual Organizations
- 1 Session on Resource Reservation
- 1 Session on Scheduling

Theme Highlight: Workflow Management Systems



Theme Highlight: Workflow Management Systems

Most cited: Taverna [2] (web services, bioinformatics services), Kepler [3] (large library of generic components), Pegasus [4] and GridFlow (DAGs), GSFL + BPEL4WS (allow iterations, complex). Survey in [1].

[1] Yu, J., Buyya, R.: A Taxonomy of Workflow Management Systems for Grid Computing, Journ. of Grid Comp., vol 3, pp 171-200, sept 2005.

[2] T. Oinn, M. Addis, J. Ferris, D. Marvin, M. Senger, M. Greenwood, T. Carver, K. Glover, M. R. Pocock, A. Wipat, and P. Li. Taverna: A tool for the composition and enactment of bioinformatics workflows.Bioinformatics, 20(17):3045–3054, 2004.

[3] I. Altintas, C. Berkley, E. Jaeger, M. Jones, B. Lud ascher, and S. Mock. Kepler: An extensible system for design and execution of scientific workflows. In SSDBM, pp 423-424, 2004.

[4] E. Deelman, J. Blythe, Y. Gil, C. Kesselman, G. Mehta, S. Patil, M.-H. Su, K. Vahi, and M. Livny. Pegasus: Mapping scientific workflows onto the grid. In European Across Grids Conference, pp 11-20, 2004.

Main Track

- 3 Session on Workflows and Knowledge Management
  - Semantic Composition of Scientific Workflows (e.g. based on the Petri Nets)
  - Ontologies (aim to provide Virtual Organizations with a formalism for describing the domain and its relation with the Grid resources as well as a knowledge base that would manage these descriptions.)
  - Workflow execution scheduling

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- 4 Sessions on Frameworks for e-Science
  - description language for application coupling, workflow of applications (see survey on workflows [1]),
  - data management systems (e.g. Grid Datafarm, Globus RLS, SRB ...) : data replication in various sites to optimize access to large datasets and provide fault-tolerance. API provided by the data management system.
  - fault-tolerance
  - facilitating programs development for the Grid : existing Grid-specific IDE, generic re-usable middleware components (most cited: P-GRADE, GrADS/VGrADS, GT4IDE, GriDE).

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Theme Highlight: Resource reservation

(also *resource provisioning* $\neq$ best effort)
Agreement-based resource management. The resource consumer or a broker enters into a contractual agreement with the resource provider about the availability of certain resources for a certain timeframe at a certain cost. Ongoing work in the Grid Resource Allocation and Agreement Protocol Working Group (GRAAP-WG) of the GGF on formalizing the mechanisms and protocols for creating resource agreements.

[1] A. Anjomshoaa, F. Brisard, M. Drescher, D. Fellows, A. Ly, S. McGough, D. Pulsipher, and A. Savva. Job Submission Description Language (JSDL) Specification v1.0. Global Grid Forum, November 2005. http://www.gridforum.org/documents/GFD.56.pdf.

[2] MacLaren, J., Advance Reservations: State of the Art, in Working Draft, Global Grid Forum at http://www.fz-juelich.de/zam/RD/coop/ggf/graap/sched-graap-2.0.html. 2003.

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  - Extending JSDL to integrate contract negotiation about QoS ("Extending a Resource Broker for Advance Reservation and Charging")
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