Message from Program and General Chairs

We warmly welcome you to Grid 2004, the fifth annual IEEE/ACM International workshop on Grid Computing sponsored by the IEEE Computer Society's Task Force on Cluster Computing (TFCC) and the Association for Computing Machinery (ACM). The workshop has received generous support from Microsoft Research (USA) and from the organizers of the Super Computing (SC 2004) conference.

Grid 2004 is an international meeting that brings together the community of researchers, developers, practitioners, and users involved with the Grid. The objective of Grid 2004 is to serve as a forum to present current and emerging work as well as to exchange research ideas in this field.

The previous events, which are part of this series of events were, Grid 2000, Bangalore, India; Grid 2001, Denver, CO; Grid 2002, Baltimore, MD; Grid 2003, Phoenix, AR. All of these events have been successful in attracting high quality papers and wide international participation. Last year's event attracted over 400 registered participants, and we expect a high number of participants for this year's event.

The Grid 2004 workshop partially follows the focus of previous events, but it has been extended to include service-oriented grid and utility computing technologies, with a greater emphasis on e-Science and e-Business applications. We issued a call for papers with interest in the following topics related to the Grid:

- Internet-based computing models,
- Innovative strategies for creation and management of virtual enterprises and organisations,
- Architecture and fabrics,
- Cluster integration issues,
- Middleware and toolkits,
- Monitoring, management and organization Tools,
- Information services,
- Security issues,
- Programming models, tools, and environments,
- Remote data access and management,
- Object metadata and schemas,
- Virtual instrumentation
- Resource management and scheduling,
- Computational economy,
- Autonomic and utility computing,,
- Performance evaluation and modelling,
- Advance resource reservation and scheduling,
- e-Science and e-Business applications,
- Scientific, industrial and social implications.

It is a sign of the current high levels of interest and activity in the Grid that we have had contributions to the workshop from researchers and developers from many countries including Australia, Austria, Brazil, Canada, China, France, Germany, India, Japan, Korea, Pakistan, Poland, Singapore, Spain, Switzerland, The Netherlands, UK, and USA. It is our pleasure and honour to present the proceedings of the fifth annual international Grid Computing Workshop.

Program and Proceedings Organization

The response to the workshop's call for papers has been excellent and we expect that attendance at the actual workshop will be equally impressive. The workshop has received 174 papers and each paper has been peer-reviewed by two to three members of the program committee in addition at least one external referee. We have requested each program committee member to review between 10-15 papers. Due to this large workload, we have ensured that each paper has received a minimum of two peer-reviews before making the final decision. Program committee members have reexamined papers with conflicting reviews and normalized their ratings. In consultation with members of the program and steering committees, we have finally decided to accept two categories of highly recommended and promising papers: 40 regular papers with acceptance rate of 23% and 19 short papers with acceptance rate of 11%.

The Grid 2004 workshop program consists of a keynote speech, refereed regular papers for oral presentation, and refereed short papers for poster presentation. The papers included in this printed proceedings are organized

into two sections. The first section contains regular papers that are grouped into eight categories, although inevitably there is some overlap:

- Grid computing environments,
- Virtual organizations and resource discovery,
- Grid resource management,
- Grid scheduling,
- Grid services and security,
- Data grids,
- Grid tools,
- Programming environments and grid applications.

The second section of the proceedings contains short papers that are grouped into three categories:

- Grid networking and performance evaluation,
- Resource management and scheduling,
- Grid application deployment environments.

Acknowledgements

We would like to thank all authors for submitting their research papers for consideration. The success of the workshop is wholly due to the hard work of the program committee members and external reviewers. We sincerely thank them for donating their precious time for reviewing papers and offering their expert comments.

We owe a debt of gratitude to all our contributors and sponsors. In particular, we thank Craig Lee for handling many administrative tasks required for organizing and co-locating our workshop with the SC 2004 conference. We thank Barb Fossum (the Finance Chair of SC 2004) who has managed and integrated finances and registration of our workshop with the main conference. We thank Jia Yu for setting up and managing the day-to-day operation of the WIMPE conference management system in Melbourne; in addition to helping us respond to many queries from authors and PC members during the submission and review process. We thank Radha Nandkumar for managing the workshop publicity.

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We hope these proceedings serve as a useful reference about the current research status of the Grid. We wish you all the best and hope you enjoy your visit to Pittsburgh!

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