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Euro-Par 2009 Parallel Processing Workshops

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Workshops

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Preface

Euro-Par is an annual series of international conferences dedicated to the promotion and advancement of all aspects of parallel and distributed computing. Euro-Par 2009 was the 15^{th} edition in this conference series. Througout the years, the Euro-Par conferences have always attracted high-quality submissions and have become one of the established conferences in the area of parallel and distributed processing. Built upon the success of the annual conferences and in order to accommodate the needs of special interest groups (among the conference participants), starting from 2006, a series of workshops in conjunction with the Euro-Par main conference have been organized. This was the fifth year in which workshops were organized within the Euro-Par conference format.

The workshops focus on advanced specialized topics in parallel and distributed computing. These topics reflect new scientific and technological developments. While the community for such new and specific developments is still small and the topics have yet to become mature, the Euro-Par conference offers a platform in the form of a workshop to exchange ideas and discuss cooperation opportunities.

The workshops in the past four years have been very successful. The number of workshop proposals and the number of finally accepted workshops have gradually increased since 2006. In 2008, nine workshops were organized in conjunction with the main Euro-Par conference. In 2009, there were again nine workshops. Compared to 2008, the workshops HeteroPar (Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms) and XtreemOS Summit (Open Source Grid Operating System) were newcomers, while the workshops SGS (Secure, Trust, Manageable and Controllable Grid Services) and DPA (Abstraction for Distributed Systems) were discontinued in 2009. The following nine workshops were held in conjunction with EuroPar 2009:

- **HPPC 2009** was the 3^{rd} Workshop on Highly Parallel Processing on a Chip. Architectures with a large on-chip parallelism for special and general-purpose computation have been marketed in recent years with various degrees of success. Although the shift toward many-cores is inevitable and generally accepted, the road to travel is still unclear as currently there are many different architectural designs and products by both large and smaller vendors. HPPC 2009 was a forum for discussion of new research directions into parallel (multi-core) architectures, programming models, languages, libraries, algorithms, and software tools. HPCC 2009 started with a well-attended invited talk "The Next 25 Years of Computer Architecture" by Peter Hofstee. It concluded with an interesting and lively panel "Are Many-Core Computer Vendors on Track?" with panelists Uzi Vishkin, Peter Hofstee, Chris Jesshope, and Ahmed Jerraya.

- **HeteroPar 2009** was a workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms. HeteroPar 2009 was the seventh edition of this workshop, but this was the first time that it was co-located with the Euro-Par conference. The workshop intends to be a forum for people working with heterogeneous platforms and trying to find efficient problem solutions on heterogeneous systems. It started with an invited talk by Dick Epema, who discussed different forms of heterogeneity in large-scale systems and the problem of processor co-allocation. HeteroPar 2009 received a large number of submissions and eventually ten papers were accepted for presentation at the workshop.
- **PROPER 2009** was a workshop addressing productivity and performance-tools for HPC application development. The topics covered tools for parallel program development and analysis as well as general performance measurement and visualization. On the one hand, efficient and ease-of-usage of HPC systems is a very important requirement, and on the other hand scalability is essential for achieving high performance. This was the second workshop in co-location with the Euro-Par conference following the success in 2008. The papers presented at the PROPER 2009 workshop discussed performance analysis tools and new design ideas of these tools.
- **ROIA 2009** was the International Workshop on Real-Time Online Interactive Applications on the grid. It was organized in conjunction with the Euro-Par conference for the second time. The workshop intends to cover all areas of real-time distributed technologies, from research of basic real-time methods to applications in real-world environments. In order to promote this research area and to allow more people to become acquainted with ROIA-related applications, the workshop included two tutorial sessions. The papers presented at the workshop discussed the following topics: real-time interactive parallel and distributed tools and environments, real-time interactive distributed (massively multiplayer) online gaming, real-time interactive e-learning applications, integration of Cloud computing virtualization technologies with real-time interactive applications, techniques for real-time quality of service (QoS) monitoring and enforcement, utility business models and service level agreements (SLA) for ROIAs, and experiences in deployment and use of real-world distributed ROIAs.
- **UNICORE Summit 2009** was a unique opportunity for grid users, developers, administrators, and researchers working with the UNICORE grid technology to meet. UNICORE is a well-known grid middleware system which provides a seamless, secure, and intuitive access to distributed grid resources. This was the fifth time the UNICORE Summit was held in conjunction with the Euro-Par conference. The topics discussed by the papers presented at the workshop include: extensions of UNICORE, data management, and deployment.
- **VHPC 2009** was the 4^{th} Workshop on Virtualization in High-Performance Cloud Computing held in conjunction with the Euro-Par conference. The workshop intends to bring commercial providers of cloud computing services and the scientific community together in order to foster discussion,

collaboration, and mutual exchange of knowledge and experience. It provided a good opportunity for the Euro-Par community to get acquainted with this new and very active research domain. The closing session of this year was a panel forum. The discussions at the panel session were very lively and fruitful; the workshop attracted quite a high number of participants.

- **XtreemOS Summit 2009**. XtreemOS is a Linux-based operating systems that includes grid functionalities. It is characterized by properties such as transparency, hiding the complexity of the underlying distributed infrastructure; scalability, supporting hundreds of thousands of nodes and millions of users; and dependability, providing reliability, high availability and security. The XtreemOS summit included presentations and demonstrations about XtreemOS services and components. The workshop has no proceedings.
- **Gecon 2009** was the 6^{th} International Workshop on Grid Economics and Business Models. The commercial exploitation of grid computing is slowly starting to become popular under the term "cloud computing." These existing solutions are very diverse, ranging from resource-as-a-service (RaaS) models to software-as-a-service (SaaS) models. However, the existing cloud offerings can only be purchased directly from a provider; they cannot be traded in a common market. Such a cloud market would act as a focal point for grid buyers and sellers to meet. In fact, in an open market, any market participant could act as a resource provider or resource seller, depending on the current demand level. This approach would allow companies to benefit: on the one hand, excess capacity can be sold to reduce costs; on the other hand, demand peaks can be covered with cheap grid resources. At Gecon 2009 researchers and practitioners from academia and industry were gathered to discuss issues associated with the development of a common market for computing resources, including networks, storage, and software.
- **CoreGRID 2009** was the first workshop organized by the new CoreGRID Working Group sponsored by ERCIM. The CoreGRID workshop has been held in co-location with the EuroPar conference a number of times. Previously, it was organized within the context of the European research Network of Excellence in developing the foundations, software infrastructures, and applications for large-scale, distributed grid and P2P technologies. In 2009 the CoreGRID Working Group was founded after the successful completion of the European Research Network of Excellence project. The CoreGRID Working Group aims to conduct research in the area of the emerging Internet of Services, with direct relevance to the Future Internet Assembly. The grid research community has not only embraced but has also contributed to the development of the service-oriented paradigm to build interoperable grid middleware and to benefit from the progress made by the services research community.

This volume includes the proceedings of the first six workshops; the workshops CoreGRID 2009 and Gecon 2009 have separated proceedings.

The workshops had their own Program Committees and managed their own paper-reviewing process. First of all, we thank all the authors who submitted

papers to the various workshops. We are grateful to all the workshop organizers, members of Program Committees, and the many reviewers. Without their contribution organizing the workshops would not have been possible.

Last but not least, we owe a debt of gratitude to the members of the Euro-Par Steering Committee for their support; in particular to Luc Bougé for all his advice regarding organizational issues in workshops. We thank Tomàs Margalef of the organization of Euro-Par 2008 and Eduardo César of the organization of the Euro-Par 2008 workshops for sharing their experience with us. A number of institutional and industrial sponsors contributed toward the organization of Euro-Par 2009. Their names and logos appear on the Euro-Par 2009 website at `http://europar2009.ewi.tudelft.nl/`.

It was our pleasure and honor to organize and host the EuroPar 2009 workshops at Delft University of Technology. We also thank Delft University for the support and facilities they provided during the preparation and during the Euro-Par 2009 workshops.

March 2010

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