



## **High Performance Computing (HPC) and Grids in Action**

Volume 16 Advances in Parallel Computing  
Editor: L. Grandinetti  
March 2008, approx. 540 pp., hardcover  
ISBN: 978-1-58603-839-7  
Price: US\$196 / €140 / £98

Advancement of Science and Technology and its impact on the real life applications is more and more strictly related to the progress and availability of high performance parallel computer systems and Grids, the novel networked infrastructures aimed to organize and optimize the use of a huge amount of distributed data processing and computing resources. This book collects in four chapters single monographs related to the fundamental advances in parallel computer systems and their future developments from different points of view (from computer scientists, computer manufacturers, end users) and related to the establishment and evolution of Grids fundamentals, implementation and deployment.

The aim is to cover different points of view in the field by actors playing different roles, to orchestrate and correlate their interconnection and coherence, and - above all - to show behaviours, impacts, performances of architectures, systems, services, organizations in action.

Accordingly the expected audience would be broad, mainly made up by computer scientists, Ph.D. students, post doc researchers, specialists of computing and data centers, computer engineers and architects, project leaders, information system planners, professional technologists.

The book contains 27 contributed monographs written by internationally well known specialists in the field (among others J. Dongarra, I. Foster, C. Catlett, P. Beckman, M. Livny, G. Fox, D. Reed, C. Jesshope, F. Cappello).

## Contents:

### Advancement of the State of the Art in Scientific Software and Infrastructure

- Human-Machine Symbiosis, 50 Years On

### Systems and Solutions for Advanced Distributed Computing and for High Performance Computing and Networking

- Exploiting Mixed Precision Floating Point Hardware in Scientific Computations
- A Model for the Design and Programming of Multi-Cores
- Pegasus and DAGMan from Concept to Execution: Mapping Scientific Workflows onto Today's Cyberinfrastructure
- Building an Infrastructure for Urgent Computing
- Network Communication as a Service-Oriented Capability

### Grid Fundamentals

- An Infrastructure for the Deployment of e-Science Applications
- Building e-Science Portals: A Service Oriented Architecture
- A New Resource Brokering and Scheduling Solution for a Grid Environment
- Challenges of Scale: When All Computing Becomes Grid Computing
- Job Scheduling on the Grid: Towards SLA-Based Scheduling

### Grid Technology

- TeraGrid: Analysis of Organization, System Architecture, and Middleware Enabling New Types of Applications
- Applying the Provenance Data Model to a Bioinformatics Case
- Cyberinfrastructure and Web 2.0
- BabelPeers: P2P Based Semantic Grid Resource Discovery
- Data Integration Based on Schema-Mapping in Service-Based Grids

### Grids and High Performance Computing in Action

- The GReC Project: State of the Art and Future Directions
- Service-Based Access to and Processing of Large Scientific Datasets
- A Feature-Rich Workflow Description Language that Supports Resource Co-Allocations
- Parallelization and Scalability of Multiplayer Online Games via State Replication
- ImageGrid: An Image Processing Grid Based on CGSP
- The EGEE-II Project: Evolution Towards a Permanent European Grid Initiative
- Innovative Grid Technologies Applied to Bioinformatics and Hurricane Mitigation
- Computer Science Grids
- An e-Marketplace Model for Logistics Services Based on Grid Technology
- Challenges Facing Production Grids

## Order form:

### IOS Press

Nieuwe Hemweg 6B  
1013 BG Amsterdam  
The Netherlands  
Tel.: +31 20 688 3355  
Fax: +31 20 687 0039  
Email: market@iospress.nl  
URL: www.iospress.nl

### Gazelle Book Services Ltd

White Cross Mills  
Hightown  
Lancaster LA1 4XS  
United Kingdom  
Tel.: +44 1524 68765  
Fax: +44 1524 63232  
Email: sales@gazellebooks.co.uk  
URL: www.gazellebooks.co.uk

### IOS Press, Inc.

4502 Rachael Manor Drive  
Fairfax, VA 22032, USA  
Tel.: +1 703 323 5600  
Fax: +1 703 323 3668  
Email: sales@iospress.com

## ORDER ONLINE AT WWW.IOSPRESS.NL OR FILL IN THIS FORM - Select the title of your choice and click on *order online*.

I would like to order .... copies of **High Performance Computing (HPC) and Grids in Action** (US\$196 / €140 / £98)

Please bill me

Please charge my credit card

Amer. Express

Euro/Master

Visa

Exp. Date

Security code

Card no.

Name:

Address:

City/Zipcode:

Fax:

Signature:

Country:

Email:

Date:

Vat no.:

**Visit our website for more information or online ordering:  
www.iospress.nl / www.booksonline.iospress.nl**

There are many differences between high-throughput computing, high-performance computing (HPC), and many-task computing (MTC). HPC tasks are characterized as needing large amounts of computing power for short periods of time, whereas HTC tasks also require large amounts of computing, but for much longer times (months and years, rather than hours and days).[1] HPC environments are often measured in terms of FLOPS. As an alternative definition, the European Grid Infrastructure defines HTC as "a computing paradigm that focuses on the efficient execution of a large number of loosely-coupled tasks"[2] while HPC systems tend to focus on tightly coupled parallel jobs, and as such they must execute within a particular site with low-latency interconnects.