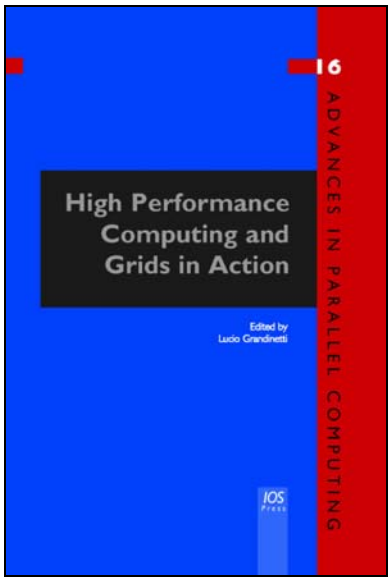
New IOS Press Publication



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:

High Performance Computing (HPC) demonstration: This example presents an algorithm which computes, for each cell in a raster (grid), a new cell that is the average of the cell and its eight immediate neighbors. The average for each cell is stored in a new and separate raster. The algorithm partitions the input and output rasters into sub-grids, and allocates a different physical processor core on NCEAS 32-processor eos server to each sub-grid. The program, presented in both the Free Pascal and C languages, uses the open-source MPICH2 implementation of the Message Passing Interface (MPI) to man HPC4U (Highly Predictable Cluster for Internet-Grids) Consortium: HPC4U project home page. Retrieved from http://www.hpc4u.org (2006). 18. Intel Inc.: Single-chip cloud computer.Â High Performance Computing and Grids in Action. IOS Press, Amsterdam (2008). Retrieved 03 Mar 2010 from http://www.cs.man.ac.uk/â¼rizos/papers/hpc08.pdf Google Scholar.