Table of Contents

Preface.................................................................................................................................................. xx

Acknowledgment.................................................................................................................................. xxvii

Section 1
Advanced Integration Methods and Services

Chapter 1
Web Services in Distributed Information Systems: Availability, Performance and Composition........ 1
   Xia Zhao, University of Bedfordshire, UK
   Tao Wang, University of Bedfordshire, UK
   Enjie Liu, University of Bedfordshire, UK
   Gordon J. Clapworthy, University of Bedfordshire, UK

Chapter 2
Towards a More Scalable Schema Matching: A Novel Approach.................................................... 17
   Sana Sellami, LIRIS, National Institute of Applied Science of Lyon, France
   Aïcha-Nabila Benharkat, LIRIS, National Institute of Applied Science of Lyon, France
   Youssef Amghar, LIRIS, National Institute of Applied Science of Lyon, France

Chapter 3
Load Balancing to Increase the Consistency of Replicas in Data Grids............................................ 42
   Ghalem Belalem, University of Oran, Es Senia, Algeria
   Naima Belayachi, University of Oran, Es Senia, Algeria
   Radjaa Behidji, University of Oran, Es Senia, Algeria
   Belabbes Yagoubi, University of Oran, Es Senia, Algeria

Chapter 4
MaGate: An Interoperable, Decentralized and Modular High-Level Grid Scheduler.......................... 58
   Ye Huang, University of Fribourg, Switzerland
   Amos Brocco, University of Fribourg, Switzerland
   Michele Courant, University of Fribourg, Switzerland
   Beat Hirsbrunne, University of Fribourg, Switzerland
   Pierre Kuonen, University of Applied Sciences of Western Switzerland, Switzerland
Chapter 5
Toward a Quality-of-Service Framework for Peer-to-Peer Applications ........................................... 74

Ankur Gupta, Model Institute of Engineering and Technology, India
Lalit K. Awasthi, National Institute of Technology, India

Chapter 6
A Study on the Effect of Application and Resource Characteristics on the QoS in Service Provisioning Environments ............................................................................................................. 98

Theodora Varvarigou, National Technical University of Athens, Greece
Konstantinos Tserpes, National Technical University of Athens, Greece
Dimosthenis Kyriazis, National Technical University of Athens, Greece
Fabrizio Silvestri, Italian National Research Council, Italy
Nikolaos Psimogiannos, University of the Aegean, Greece

Section 2
State-of-the-Art Middleware Technologies and Architectures

Chapter 7
The Crystal Ball in HPC has Never Been More Exciting, nor More Important........................................ 119

Pierre Kuonen, University of Applied Sciences of Western Switzerland, Switzerland
Marie-Christine Sawley, Swiss Federal Institute of Technology Zurich, Switzerland

Chapter 8
On the Path to Exascale ...................................................................................................................... 123

Ken Alvin, Sandia National Laboratories, USA
Brian Barrett, Sandia National Laboratories, USA
Ron Brightwell, Sandia National Laboratories, USA
Sudip Dosanjh, Sandia National Laboratories, USA
Al Geist, Oak Ridge National Laboratory, USA
Scott Hemmert, Sandia National Laboratories, USA
Michael Heroux, Sandia National Laboratories, USA
Doug Kothe, Oak Ridge National Laboratory, USA
Richard Murphy, Sandia National Laboratories, USA
Jeff Nichols, Oak Ridge National Laboratory, USA
Ron Oldfield, Sandia National Laboratories, USA
Arun Rodrigues, Sandia National Laboratories, USA
Jeffrey S. Vetter, Oak Ridge National Laboratory, USA

Chapter 9
Application Performance on the Tri-Lab Linux Capacity Cluster -TLCC ............................................. 144

Mahesh Rajan, Sandia National Laboratory, USA
Douglas Doerfler, Sandia National Laboratory, USA
Courtenay T. Vaughan, Sandia National Laboratory, USA
Marcus Epperson, Sandia National Laboratory, USA
Jeff Ogden, Sandia National Laboratory, USA
Chapter 10
Abstractions and Middleware for Petascale Computing and Beyond ................................................. 161
Ivo F. Sbalzarini, ETH Zurich, Switzerland

Chapter 11
A Simulator for Large-Scale Parallel Computer Architectures .......................................................... 179
Curtis L. Janssen, Sandia National Laboratories, USA
Helgi Adalsteinsson, Sandia National Laboratories, USA
Scott Cranford, Sandia National Laboratories, USA
Joseph P. Kenny, Sandia National Laboratories, USA
Ali Pinar, Sandia National Laboratories, USA
David A. Evensky, Sandia National Laboratories, USA
Jackson Mayo, Sandia National Laboratories, USA

Chapter 12
The Red Storm Architecture and Early Experiences with Multi-Core Processors ............................ 196
James L. Tomkins, Sandia National Laboratories, USA
Ron Brightwell, Sandia National Laboratories, USA
William J. Camp, Sandia National Laboratories, USA
Sudip Dosanjh, Sandia National Laboratories, USA
Suzanne M. Kelly, Sandia National Laboratories, USA
Paul T. Lin, Sandia National Laboratories, USA
Courtenay T. Vaughan, Sandia National Laboratories USA
John Levesque, Cray Inc., USA
Vinod Tipparaju, Oak Ridge National Laboratory, USA

Chapter 13
The Sicilian Grid Infrastructure for High Performance Computing ................................................... 215
Carmelo Marcello Iacono-Manno, Consorzio COMETA, Italy
Marco Fargetta, Consorzio COMETA, Italy
Roberto Barbera, Consorzio COMETA, Italy, and Università di Catania, Italy
Alberto Falzone, NICE srl, Italy
Giuseppe Andronico, Istituto Nazionale di Fisica Nucleare, Italy
Salvatore Monforte, Istituto Nazionale di Fisica Nucleare, Italy
Annamaria Muoio, Consorzio COMETA, Italy
Riccardo Bruno, Consorzio COMETA, Italy
Pietro Di Primo, Consorzio COMETA, Italy
Salvatore Orlando, Istituto Nazionale di Astro-Fisica, Palermo
Emanuele Leggio, Consorzio COMETA, Italy
Alessandro Lombardo, Consorzio COMETA, Italy
Gianluca Passaro, Consorzio COMETA, Italy
Gianmarco De Francisci-Morales, Consorzio COMETA, Italy, and Università degli Studi di Catania, Catania
Simona Blandino, Consorzio COMETA, Italy, and Università degli Studi di Catania, Catania
Section 3
High Performance Distributed Systems and Applications

Chapter 14
Credential Management Enforcement and Secure Data Storage in gLite ................. 229
  Francesco Tusa, Università degli Studi di Messina, Italy
  Massimo Villari, Università degli Studi di Messina, Italy
  Antonio Puliafito, Università degli Studi di Messina, Italy

Chapter 15
A Grid-Aware Emergency Response Model (G-AERM) for Disaster Management .......... 252
  Eleana Asimakopoulou, University of Bedfordshire, UK
  Chimay J Anumba, Loughborough University, UK
  Dino Bouchlaghem, The Pennsylvania State University, USA

Chapter 16
A Mathematical Analysis of a Disaster Management Data-Grid Push Service ............. 268
  Nik Bessis, University of Bedfordshire, UK
  Antony Brown, University of Bedfordshire, UK
  Eleana Asimakopoulou, University of Bedfordshire, UK

Chapter 17
Service and Management Oriented Traffic Information Grid .................................. 283
  Yu Fang, Tongji University, China
  Dong Liang Zhang, Tongji University, China
  Chun Gang Yan, Tongji University, China
  Hong Zhong Chen, Tongji University, China
  Changjun Jiang, Tongji University, China

Chapter 18
Mining Environmental Data in the ADMIRE Project Using New Advanced
  Methods and Tools ........................................................................................................... 296
  Ondrej Habala, The Slovak Academy of Sciences, Slovakia
  Martin Šeleng, The Slovak Academy of Sciences, Slovakia
  Viet Tran, The Slovak Academy of Sciences, Slovakia
  Branislav Šimo, The Slovak Academy of Sciences, Slovakia
  Ladislav Hluchý, The Slovak Academy of Sciences, Slovakia

Chapter 19
Collaborative e-Learning and ICT Tools to Develop SME Managers: An Italian Case ...... 309
  Genoveffa (Jeni) Giambona, University of Reading, UK
  David W. Birchall, University of Reading, UK
Chapter 20
Sketch Based Video Annotation and Organization System in Distributed Teaching Environment........321

Jia Chen, Chinese Academy of Sciences & the Graduate University of Chinese Academy of Sciences, China
Cui-xia Ma, Chinese Academy of Sciences, China
Hong-an Wang, Chinese Academy of Sciences, China
Hai-yan Yang, Chinese Academy of Sciences and the Graduate University of Chinese Academy of Sciences, China
Dong-xing Teng, Chinese Academy of Sciences, China

Chapter 21
OBIRE: Ontology Based Bibliographic Information Retrieval in P2P Networks..................336

Xiangyu Liu, Brunel University, UK
Maozhen Li, Brunel University, UK
Yang Liu, Brunel University, UK
Man Qi, Canterbury Christ Church University, UK

Compilation of References.............................................................................................................352

About the Contributors..................................................................................................................377

Index...................................................................................................................................................396