
Contents

Preface.....	vii
Acknowledgments.....	xiii
About the Editors.....	xv
List of Contributors.....	xvii
1 Evaluation Criteria to Run Scientific Applications in the Cloud	1
<i>Eduardo Roloff, Alexandre da Silva Carissini, and Philippe Olivier Alexandre Navaux</i>	
2 Cloud-Based Infrastructure for Data-Intensive e-Science Applications: Requirements and Architecture.....	17
<i>Yuri Demchenko, Canh Ngo, Paola Grosso, Cees de Laat, and Peter Membrey</i>	
3 Securing Cloud Data.....	41
<i>Sushmita Ruj and Rajat Saxena</i>	
4 Adaptive Execution of Scientific Workflow Applications on Clouds	73
<i>Rodrigo N. Calheiros, Henry Kasim, Terence Hung, Xiaorong Li, Sifei Lu, Long Wang, Henry Palit, Gary Lee, Tuan Ngo, and Rajkumar Buyya</i>	
5 Migrating e-Science Applications to the Cloud: Methodology and Evaluation.....	89
<i>Steve Strauch, Vasilios Andrikopoulos, Dimka Karastoyanova, and Karolina Vukojevic-Haupt</i>	
6 Closing the Gap between Cloud Providers and Scientific Users	115
<i>David Susa, Harold Castro, and Mario Villamizar</i>	
7 Assembling Cloud-Based Geographic Information Systems: A Pragmatic Approach Using Off-the-Shelf Components.....	141
<i>Muhammad Akmal, Ian Allison, and Horacio González-Vélez</i>	
8 HCloud, a Healthcare-Oriented Cloud System with Improved Efficiency in Biomedical Data Processing	163
<i>Ye Li, Chenguang He, Xiaomao Fan, Xucan Huang, and Yunpeng Cai</i>	

9 RPig: Concise Programming Framework by Integrating R with Pig for Big Data Analytics	193
<i>MingXue Wang and Sidath B. Handurukande</i>	
10 AutoDock Gateway for Molecular Docking Simulations in Cloud Systems	217
<i>Zoltán Farkas, Péter Kacsuk, Tamás Kiss, Péter Borsody, Ákos Hajnal, Ákos Balaskó, and Krisztián Karóczkai</i>	
11 SaaS Clouds Supporting Biology and Medicine	237
<i>Philip Church, Andrzej Goscinski, Adam Wong, and Zahir Tari</i>	
12 Energy-Aware Policies in Ubiquitous Computing Facilities	267
<i>Marina Zapater, Patricia Arroba, José Luis Ayala Rodrigo, Katalin Olcoz Herrero, and José Manuel Moya Fernandez</i>	
Index	287