# Table of Contents

**Preface**

**Acknowledgment**

**Chapter 1**
An Abstract Model for Integrated Intrusion Detection and Severity Analysis for Clouds

*Junaid Arshad, University of Leeds, UK*

*Paul Townend, University of Leeds, UK*

*Jie Xu, University of Leeds, UK*

**Chapter 2**

*Ismael Solis Moreno, University of Leeds, UK*

*Jie Xu, University of Leeds, UK*

**Chapter 3**
The Challenge of Service Level Scalability for the Cloud

*Luis M. Vaquero, Telefónica Investigación y Desarrollo, Spain*

*Juan Cáceres, Telefónica, Spain*

*Daniel Morán, Universidad Nacional de Educación a Distancia, Spain*

**Chapter 4**
Beyond Hadoop: Recent Directions in Data Computing for Internet Services

*Zhiwei Xu, Chinese Academy of Sciences, China*

*Bo Yan, Chinese Academy of Sciences, China*

*Yongqiang Zou, Tencent Research, China*

**Chapter 5**
SaaS Multi-Tenancy: Framework, Technology, and Case Study

*Hong Cai, IBM China Software Development Lab, China*

*Berthold Reinwald, IBM Almaden Research Center, USA*

*Ning Wang, IBM China Software Development Lab, China*

*Chang Jie Guo, IBM China Research Lab, China*
Chapter 6
Cloud Computing in Higher Education: Opportunities and Issues......................................................... 83
  P. Sasikala, Makhanlal Chaturvedi National University of Journalism and Communication, India

Chapter 7
Using Free Software for Elastic Web Hosting on a Private Cloud .......................................................... 97
  Roland Kübert, University of Stuttgart, Germany
  Gregory Katsaros, University of Stuttgart, Germany

Chapter 8
  Louay Karadsheh, ECPI University, USA
  Samer Alhawari, Applied Science Private University, Jordan

Chapter 9
The Financial Clouds Review .................................................................................................................. 125
  Victor Chang, University of Southampton and University of Greenwich, UK
  Chung-Sheng Li, IBM Thomas J. Watson Research Center, USA
  David De Roure, University of Oxford, UK
  Gary Wills, University of Southampton, UK
  Robert John Walters, University of Southampton, UK
  Clinton Chee, Commonwealth Bank, Australia

Chapter 10
Cloud Security Engineering: Avoiding Security Threats the Right Way ............................................. 147
  Shadi Aljawarneh, Isra University, Jordan

Chapter 11
  Kamal Dahbur, New York Institute of Technology, Jordan
  Bassil Mohammad, New York Institute of Technology, Jordan
  Ahmad Bisher Tarakji, New York Institute of Technology, Jordan

Chapter 12
Cloud Computing Applied for Numerical Study of Thermal Characteristics of SIP............................ 166
  S. K. Maharana, MVJ College of Engineering, Bangalore, India
  Praveen B. Mali, MVJ College of Engineering, Bangalore, India
  Ganesh Prabhakar P, MVJ College of Engineering, Bangalore, India
  Sunil J, MVJ College of Engineering, Bangalore, India
  Vignesh Kumar V, MVJ College of Engineering, Bangalore, India

Chapter 13
Toward Understanding the Challenges and Countermeasures in Computer Anti-Forensics ............. 176
  Kamal Dahbur, New York Institute of Technology, Jordan
  Bassil Mohammad, New York Institute of Technology, Jordan
Chapter 14
Power Aware Meta Scheduler for Adaptive VM Provisioning in IaaS Cloud ......................................... 190
   R. Jeyarani, Coimbatore Institute of Technology, India
   N. Nagaveni, Coimbatore Institute of Technology, India
   Satish Kumar Sadasivam, IBM Systems and Technology Group, India
   Vasanth Ram Rajarathinam, PSG College of Technology, India

Chapter 15
Custom-Made Cloud Enterprise Architecture for Small Medium and Micro Enterprises .................. 205
   Promise Mvelase, CSIR Meraka Institute, South Africa
   Nomusa Dlodlo, CSIR Meraka Institute, South Africa
   Quentin Williams, CSIR Meraka Institute, South Africa
   Matthew Adigun, University of Zululand, South Africa

Chapter 16
Architectural Strategies for Green Cloud Computing: Environments, Infrastructure and Resources ................................................................. 218
   P. Sasikala, Makhanlal Chaturvedi National University of Journalism and Communication, India

Chapter 17
   Jeffrey Chang, London South Bank University, UK

Chapter 18
Survey of the State-of-the-Art of Cloud Computing ................................................................. 252
   Sanjay P. Ahuja, University of North Florida, USA
   Alan C. Rolli, University of North Florida, USA

Chapter 19
Cloud Computing Towards Technological Convergence ......................................................... 263
   P. Sasikala, Makhanlal Chaturvedi National University of Journalism and Communication, India

Chapter 20
Fault Tolerant Architecture to Cloud Computing Using Adaptive Checkpoint ......................... 280
   Ghalem Belalem, University of Oran (Es Senia), Africa
   Said Limam, University of Oran (Es Senia), Africa

Compilation of References ........................................................................................................... 290

Index .................................................................................................................................................. 312