

Table of Contents

Foreword	xvi
Preface	xviii
Acknowledgment	xxii

Section 1 **Software as a Service**

Chapter 1

Modelling and Analysing QoS for Real-Time Interactive Applications on the Cloud	1
<i>Matthew Addis, University of Southampton IT Innovation Centre, UK</i>	
<i>Michael Boniface, University of Southampton IT Innovation Centre, UK</i>	
<i>Juri Papay, University of Southampton IT Innovation Centre, UK</i>	
<i>Arturo Servin, University of Southampton IT Innovation Centre, UK</i>	
<i>Zlatko Zlatev, University of Southampton IT Innovation Centre, UK</i>	
<i>George Kousiouris, National Technical University Athens, Greece</i>	

Chapter 2

Model-Driven Engineering, Services and Interactive Real-Time Applications	16
<i>Luis Costa, SINTEF ICT, Norway</i>	
<i>Neil Loughran, SINTEF ICT, Norway</i>	
<i>Roy Gronmo, SINTEF ICT, Norway</i>	

Chapter 3

Programming Interfaces for Realtime and Cloud-Based Computing	41
<i>Gregory Katsaros, National Technical University of Athens, Greece</i>	
<i>Tommaso Cucinotta, Scuola Superiore Sant'Anna, Italy</i>	

Chapter 4

Service Quality Model Evaluation.....	59
---------------------------------------	----

Fotis Aisopos, National Technical University of Athens, Greece

Magdalini Kardara, National Technical University of Athens, Greece

Vrettos Moulos, National Technical University of Athens, Greece

Athanasios Papaoikonomou, National Technical University of Athens, Greece

Konstantinos Tserpes, National Technical University of Athens, Greece

Theodora A. Varvarigou, National Technical University of Athens, Greece

Section 2

Platform as a Service

Chapter 5

Taxonomy and State of the Art of Service Discovery Mechanisms and Their Relation to the Cloud Computing Stack.....	75
--	----

George Kousiouris, National Technical University of Athens, Greece

Dimosthenis P. Kyriazis, National Technical University of Athens, Greece

Theodora A. Varvarigou, National Technical University of Athens, Greece

Eduardo Oliveros, Telefónica Investigación y Desarrollo, Spain

Patrick Mandic, Rechenzentrum Universität Stuttgart, Germany

Chapter 6

Monitoring and Metering in the Cloud	94
--	----

Eduardo Oliveros, Telefónica Investigación y Desarrollo, Spain

Tommaso Cucinotta, Scuola Superiore Sant'Anna, Italy

Stephen C. Phillips, University of Southampton IT Innovation Centre, UK

Xiaoyu Yang, University of Southampton IT Innovation Centre, UK

Stuart Middleton, University of Southampton IT Innovation Centre, UK

Thomas Voith, Alcatel-Lucent, Germany

Chapter 7

Workflow Management Systems in Distributed Environments.....	115
--	-----

Spyridon V. Gogouvitis, National Technical University of Athens, Greece

Kleopatra G. Konstanteli, National Technical University of Athens, Greece

Dimosthenis P. Kyriazis, National Technical University of Athens, Greece

Gregory Katsaros, National Technical University of Athens, Greece

Tommaso Cucinotta, Scuola Superiore Sant'Anna, Italy

Michael Boniface, University of Southampton IT Innovation Centre, UK

Chapter 8

Service Level Agreements for Real-Time Service-Oriented Infrastructures	133
---	-----

Roland Kübert, University of Stuttgart, Germany

Georgina Gallizo, University of Stuttgart, Germany

Theodoros Polychniatis, National Technical University of Athens, Greece

Theodora A. Varvarigou, National Technical University of Athens, Greece

Eduardo Oliveros, Telefónica Investigación y Desarrollo, Spain

Stephen C. Phillips, University of Southampton IT Innovation Centre, UK

Karsten Oberle, Alcatel Lucent Bell Labs, Germany

Chapter 9

Securing Real-Time Interactive Applications in Federated Clouds.....	160
--	-----

Michael Boniface, University of Southampton IT Innovation Centre, UK

Bassem Nasser, University of Southampton IT Innovation Centre, UK

Mike Surridge, University of Southampton IT Innovation Centre, UK

Eduardo Oliveros, Telefónica Investigación y Desarrollo, Spain

Chapter 10

Web Service Specifications Relevant for Service Oriented Infrastructures.....	174
---	-----

Eduardo Oliveros, Telefónica Investigación y Desarrollo, Spain

Jesús Movilla, Telefónica Investigación y Desarrollo, Spain

Andreas Menychtas, National Technical University of Athens, Greece

Roland Kuebert, University of Stuttgart, Germany

Michael Braitmaier, University of Stuttgart, Germany

Stuart Middleton, University of Southampton IT Innovation Centre, UK

Stephen C. Phillips, University of Southampton IT Innovation Centre, UK

Michael Boniface, University of Southampton IT Innovation Centre, UK

Bassem Nasser, University of Southampton IT Innovation Centre, UK

Section 3

Infrastructure as a Service

Chapter 11

Execution and Resource Management in QoS-Aware Virtualized Infrastructures.....	200
---	-----

Dominik Lamp, University of Stuttgart, Germany

Sören Berger, University of Stuttgart, Germany

Manuel Stein, Alcatel-Lucent Bell Labs, Germany

Thomas Voith, Alcatel-Lucent Bell Labs, Germany

Tommaso Cucinotta, Scuola Superiore Sant'Anna, Italy

Marko Bertogna, Scuola Superiore Sant'Anna, Italy

Chapter 12	
Network Management in Virtualized Infrastructures.....	218
<i>Manuel Stein, Alcatel-Lucent Bell Labs, Germany</i>	
<i>Karsten Oberle, Alcatel-Lucent Bell Labs, Germany</i>	
<i>Thomas Voith, Alcatel-Lucent Bell Labs, Germany</i>	
<i>Dominik Lamp, University of Stuttgart, Germany</i>	
<i>Sören Berger, University of Stuttgart, Germany</i>	
Chapter 13	
Data Storage in Cloud Based Real-Time Environments.....	236
<i>Sai Narasimhamurthy, Xyratex, UK</i>	
<i>Malcolm Muggeridge, Xyratex, UK</i>	
<i>Stefan Waldschmidt, Digital Film Technology, Germany</i>	
<i>Fabio Checconi, Scuola Superiore Sant'Anna, Italy</i>	
<i>Tommaso Cucinotta, Scuola Superiore Sant'Anna, Italy</i>	
Chapter 14	
Fault Detection and Recovery Mechanisms and Techniques for Service Oriented Infrastructures	259
<i>Andreas Menychtas, National Technical University of Athens, Greece</i>	
<i>Kleopatra G. Konstanteli, National Technical University of Athens, Greece</i>	
Chapter 15	
Real-Time Attributes in Operating Systems	275
<i>Tommaso Cucinotta, Scuola Superiore Sant'Anna, Italy</i>	
<i>Spyridon V. Gogouvitis, National Technical University of Athens, Greece</i>	
Compilation of References	288
About the Contributors	316
Index.....	326