



CLOUD COMPUTING 2012

The Third International Conference on Cloud Computing, GRIDs, and Virtualization

July 22-27, 2012

Nice, France

CLOUD COMPUTING 2012 Editors

Wolf Zimmermann, Martin-Luther University Halle-Wittenberg, Germany

Yong Woo Lee, University of Seoul, Korea

Yuri Demchenko, University of Amsterdam, Netherlands

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2012)

International Academy, Research, and Industry Association (IARIA)
412 Derby Way
Wilmington, DE 19810

Phone: (408) 893-6407
Fax: (408) 527-6351

petre@aria.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

CLOUD COMPUTING 1: CHALLENGING FEATURES I

Proposed Joint Multiple Resource Allocation Method for Cloud Computing Services with Heterogeneous QoS.....	1
<i>Yuuki Awano, Shin-ichi Kuribayashi</i>	
Guidelines for Increasing the Adoption of Cloud Computing within SMEs.....	7
<i>Marius Marian, Ileana Hamburg</i>	
IDSaaS: Intrusion Detection System as a Service in Public Clouds	11
<i>Turki Alharkan, Patrick Martin</i>	
A Semantic Model to Characterize Pricing and Negotiation Schemes of Cloud Resources	18
<i>Giuseppe Di Modica, Orazio Tomarchio</i>	
Controlling Data-Flow in the Cloud.....	24
<i>Mandy Weißbach, Wolf Zimmermann</i>	

CLOUD COMPUTING 2: CHALLENGING FEATURES II

A Security Architecture for Cloud Storage Combining Proofs of Retrievability and Fairness	30
<i>Aiiad Albeshri, Colin Boyd, Juan Gonzalez Nieto</i>	
The Optimal Resource Allocation Among Virtual Machines in Cloud Computing.....	36
<i>Marjan Gusev, Sasko Ristov</i>	
A Framework for the Flexible Deployment of Scientific Workflows in Grid Environments	43
<i>Javier Fabra, Sergio Hernández, Pedro Álvarez, Joaquín Ezpeleta</i>	
Semi-shared Storage Subsystem for OpenNebula.....	51
<i>Sandor Acs, Péter Kacsuk, Miklos Kozlovszky</i>	

CLOUD COMPUTING 3: VIRTUALIZATION

A Fast Virtual Machine Storage Migration Technique Using Data Deduplication.....	57
<i>Kazushi Takahashi, Koichi Sasada, Takahiro Hirofuchi</i>	
Network Performance-Aware Virtual Machine Migration in Data Centers	65
<i>Jun Chen, Weidong Liu, Jiaxing Song</i>	
Performance Influence of Live Migration on Multi-Tier Workloads in Virtualization Environments.....	72
<i>Xiaohong Jiang, Fengxi Yan, Kejiang Ye</i>	

CLOUD COMPUTING 4: CLOUD COMPUTING I

About the Flexible Migration of Workflow Tasks to Clouds	82
<i>Michael Gerhards, Volker Sander, Adam Belloum</i>	
HPCCA: Is Efficient in Mobile Cloud Environment (MCE)?	88
<i>Khalid Mohiuddin, Ashiquee Rasool Mohammad, Asharul Islam, Aftab Alam</i>	
Intercloud Object Storage Service: Colony	95
<i>Shigetoshi Yokoyama, Nobukazu Yoshioka, Motonobu Ichimura</i>	
Mobile Cloud Computing Environment as a Support for Mobile Learning.....	99
<i>Stojan Kitanov, Danco Davcev</i>	

CLOUD COMPUTING 5: CLOUD COMPUTING II

Provenance in the Cloud: Why and How?	106
<i>Muhammad Imran, Helmut Hlavacs</i>	
A Secure Data Access Mechanism for Cloud Tenants	113
<i>Chunming Rong, Hongbing Cheng</i>	
Dynamic Scenarios of Trust Establishment in the Public Cloud Service Market	120
<i>So Young Kim, Junseok Hwang, Jörn Altmann</i>	

CLOUD COMPUTING 6: CLOUD COMPUTING III

De-replication: A Dynamic Memory Aware Mechanism	124
<i>Manu Vardhan, Paras Gupta, Dharmender Singh Kushwaha</i>	

Evaluating Eucalyptus Virtual Machine Instance Types: A Study Considering Distinct Workload Demand.....	130
<i>Erica Sousa, Paulo Maciel, Erico Medeiros, Débora Souza, Fernando Lins, Eduardo Tavares</i>	
Towards a SLA-compliant Cloud Resource Allocator for N-tier Applications	136
<i>Aaron McConnell, Gerard Parr, Sally McClean, Philip Morrow, Bryan Scotney</i>	
Simulation-based Evaluation of an Intercloud Service Broker.....	140
<i>Foued Jrad, Jie Tao, Achim Streit</i>	

CLOUD COMPUTING 7: PLATFORMS, INFRASTRUCTURES AND APPLICATIONS I

A Study of Cloud Mobility in a Mobile Cloud Network based on Future Internet Approach.....	146
<i>Dongha Kim, Hyunjun Kim, Gijeong Kim, Sungwon Lee</i>	
Provenance Framework for the Cloud Environment (IaaS)	152
<i>Muhammad Imran, Helmut Hlavacs</i>	
Enhancing Mobile Device Security by Security Level Integration in a Cloud Proxy.....	159
<i>Thomas Ruebsamen, Christoph Reich</i>	
Maximizing Utilization in Private IaaS Clouds with Heterogenous Load	169
<i>Tomas Vondra, Jan Sedivy</i>	

CLOUD COMPUTING 8: PLATFORMS, INFRASTRUCTURES AND APPLICATIONS II

Defining Inter-Cloud Architecture for Interoperability and Integration	174
<i>Yuri Demchenko, Canh Ngo, Marc Makkes, Rudolf Stgrijkers, Cees de Laat</i>	
Cloud Network Security Monitoring and Response System	181
<i>Murat Mukhtarov, Natalia Miloslavskaya, Alexander Tolstoy</i>	
Analysis and Optimization of Massive Data Processing on High Performance Computing Architecture	186
<i>He Huang, Shanshan Li, Xiaodong Yi, Feng Zhang, Xiangke Liao, Pan Dong</i>	
Providing a Solution for Live Migration of Virtual Machines in Eucalyptus Cloud Computing Infrastructure without Using a Shared Disk	192
<i>Shayan Zamani Rad, Morteza Sargolzai Javan, Mohammad Kazem Akbari</i>	

CLOUD COMPUTING 9: CHALLENGING FEATURES III

Proactive Performance Optimization of IT Services Supply-Chain Utilizing a Business Service Innovation Value Roadmap	197
<i>Ethan Hadar, Jason Davis, Donald F. Ferguson</i>	
Load Balancing in Cloud Computing Systems Through Formation of Coalitions in a Spatially Generalized Prisoner's Dilemma Game	201
<i>Jakub Gasior, Franciszek Seredyński</i>	
Cloud Computing Brokering Service : A Trust Framework	206
<i>Prashant Khanna, Budida Babu</i>	
Towards a Domain-Specific Language to Deploy Applications in the Clouds.....	213
<i>Eirik Brandtzaeg, Parastoo Mohagheghi, Sébastien Mosser</i>	
Cloud-based Healthcare: Towards a SLA Compliant Network Aware Solution for Medical Image Processing.....	219
<i>Shane Hallett, Gerard Parr, Sally McClean, Aaron McConnell, Basim Majeed</i>	

CLOUD COMPUTING 10: PLATFORMS, INFRASTRUCTURES AND APPLICATIONS III

Cloud Objects: Programming the Cloud with Object-Oriented Map/Reduce	224
<i>Julian Friedman, Manuel Oriol</i>	
Reliable Approach to Sell the Spare Capacity in the Cloud.....	229
<i>Wesam Dawoud, Ibrahim Takouna, Christoph Meinel</i>	
Enabling the Deployment of Virtual Clusters on the VCOC Experiment of the BonFIRE Federated Cloud.....	237
<i>Raul Valin, Luis M. Carril, J. Carlos Mouriño, Carmen Cotelo, Andrés Gomez, Carlos Fernandez</i>	
Towards a Scalable Cloud-based RDF Storage Offering a Pub/Sub Query Service	243
<i>Laurent Pellegrino, Françoise Baude, Iyad Alshabani</i>	

CLOUD COMPUTING 11: CLOUD COMPUTING IV

Datanode Optimization in Distributed Storage Systems	247
<i>Xiaokang Fan, Shanshan Li, Xiangke Liao, Lei Wang, Chenlin Huang, Jun Ma</i>	
ERHA: Execution and Resources Homogenization Architecture.....	253
<i>Guilherme Galante, Luis Carlos Erpen Bona, Paulo Antonio Leal Rego, José Neuman Souza</i>	
Cloud based Dynamically Provisioned Multimedia Delivery: An Elastic Video Endpoint (EVE).....	260
<i>Alistair Blair, Gerard Parr, Philip Morrow, Bryan Scotney, Aaron McConnell, Steve Appleby, Mike Nilsson</i>	
“cocoBox”: A Social File Cloud System for Collaboration	266
<i>Ki-Sook Chung, Hyun-joo Bae</i>	
Author Index	