

2013 IEEE 6th International Conference on Cloud Computing (CLOUD 2013)

**Santa Clara, California, USA
28 June – 3 July 2013**

Pages 1-493



**IEEE Catalog Number: CFP13CLO-POD
ISBN: 978-1-4799-0490-7**

2013 IEEE Sixth International Conference on Cloud Computing

CLOUD 2013

Table of Contents

Message from the General Chairs and Program Chairs.....	xvi
Organizing Committee.....	xvii
Program Committee.....	xix
External Reviewers.....	xxi
IEEE Computer Society Technical Committee on Services Computing (TC-SVC).....	xxii

Research Track

Research Track 1 — MapReduce

Using a Tunable Knob for Reducing Makespan of MapReduce Jobs in a Hadoop Cluster	1
<i>Yi Yao, Jiayin Wang, Bo Sheng, and Ningfang Mi</i>	
Improving Multi-job MapReduce Scheduling in an Opportunistic Environment	9
<i>Yuting Ji, Lang Tong, Ting He, Jian Tan, Kang-won Lee, and Li Zhang</i>	
MC2: Map Concurrency Characterization for MapReduce on the Cloud	17
<i>Mohammad Hammoud and Majd F. Sakr</i>	

Research Track 2 — Data Centers

Impact of Instance Seeking Strategies on Resource Allocation in Cloud Data Centers	27
<i>Hao Zhuang, Xin Liu, Zhonghong Ou, and Karl Aberer</i>	
Redundancy Aware Virtual Disk Mobility for Cloud Computing	35
<i>Alexei Karve and Andrzej Kochut</i>	
Improving Availability of Cloud-Based Applications through Deployment Choices	43
<i>Jim (Zhanwen) Li, Qinghua Lu, Liming Zhu, Len Bass, Xiwei Xu, Sherif Sakr, Paul L. Bannerman, and Anna Liu</i>	

Research Track 3 — Privacy and Policy

Efficient Privacy-Preserving Range Queries over Encrypted Data in Cloud Computing	51
<i>Bharath K. Samanthula and Wei Jiang</i>	
An Application-Level Approach for Privacy-Preserving Virtual Machine Checkpointing	59
<i>Yaohui Hu, Tianlin Li, Ping Yang, and Kartik Gopalan</i>	
Configuration Policy Extraction for Parameter Settings in Cloud Infrastructure Using UML/OCL Verification	67
<i>Shinji Kikuchi, Tetsuya Uchiumi, Shinya Kitajima, and Yasuhide Matsumoto</i>	

Research Track 4 — Mobile and Heterogeneous Clouds

MuSIC: Mobility-Aware Optimal Service Allocation in Mobile Cloud Computing	75
<i>M. Reza Rahimi, Nalini Venkatasubramanian, and Athanasios V. Vasilakos</i>	
A Framework for Implementing Mobile Cloud Services in VANETs	83
<i>Khaleel Mershad and Hassan Artail</i>	
Improving the Efficiency of Cloud Infrastructures with Elastic Tandem Machines	91
<i>Frank Dürr</i>	

Research Track 5 — Pricing Models

Minimizing the Operational Cost of Data Centers via Geographical Electricity Price Diversity	99
<i>Zichuan Xu and Weifa Liang</i>	
Exploiting Performance and Cost Diversity in the Cloud	107
<i>Luke M. Leslie, Young Choon Lee, Peng Lu, and Albert Y. Zomaya</i>	
Optimal Pricing and Service Provisioning Strategies in Cloud Systems: A Stackelberg Game Approach	115
<i>Valerio Di Valerio, Valeria Cardellini, and Francesco Lo Presti</i>	

Research Track 6 — Scheduling and Load Balancing

Using Time Discretization to Schedule Scientific Workflows in Multiple Cloud Providers	123
<i>Luiz Fernando Bittencourt and Edmundo Roberto Mauro Madeira</i>	
TimeCap: Methodology for Comparing IT Infrastructures Based on Time and Capacity Metrics	131
<i>Toni Mastelic and Ivona Brandic</i>	
Join the Best Queue: Reducing Performance Variability in Heterogeneous Systems	139
<i>Sebastiano Spicuglia, Lydia Y. Chen, and Walter Binder</i>	

Research Track 7 — Security

BigSecret: A Secure Data Management Framework for Key-Value Stores	147
<i>Erman Pattuk, Murat Kantarcioglu, Vaibhav Khadilkar, Huseyin Ulusoy, and Sharad Mehrotra</i>	
Secure Computation of Top-K Eigenvectors for Shared Matrices in the Cloud	155
<i>James Powers and Keke Chen</i>	

A Server-Side Solution to Cache-Based Side-Channel Attacks in the Cloud	163
<i>Michael Godfrey and Mohammad Zulkernine</i>	

Research Track 8 — Best Student Paper Candidates

An Experimental Study of Rapidly Alternating Bottlenecks in n-Tier Applications	171
<i>Qingyang Wang, Yasuhiko Kanemasa, Jack Li, Deepal Jayasinghe, Toshihiro Shimizu, Masazumi Matsubara, Motoyuki Kawaba, and Calton Pu</i>	
M-Lock: Accelerating Distributed Transactions on Key-Value Stores through Dynamic Lock Localization	179
<i>Naresh Rapolu, Srimat Chakradhar, Adnan Hassan, and Ananth Grama</i>	

Research Track 9 — Resource Provisioning and Allocation

A Family of Truthful Greedy Mechanisms for Dynamic Virtual Machine Provisioning and Allocation in Clouds	188
<i>Mahyar Movahed Nejad, Lena Mashayekhy, and Daniel Grosu</i>	
Hierarchical Virtual Machine Consolidation in a Cloud Computing System	196
<i>Inkwon Hwang and Massoud Pedram</i>	
Residency Aware Inter-VM Communication in Virtualized Cloud: Performance Measurement and Analysis	204
<i>Qi Zhang, Ling Liu, Yi Ren, Kisung Lee, Yuzhe Tang, Xu Zhao, and Yang Zhou</i>	

Research Track 10 — Autonomy

VScaler: Autonomic Virtual Machine Scaling	212
<i>Lenar Yazdanov and Christof Fetzer</i>	
Self-Adaptive Resource Allocation for Elastic Process Execution	220
<i>Philipp Hoenisch, Stefan Schulte, Schahram Dustdar, and Srikumar Venugopal</i>	
CAP3: A Cloud Auto-Provisioning Framework for Parallel Processing Using On-Demand and Spot Instances	228
<i>He Huang, Liqiang Wang, Byung Chul Tak, Long Wang, and Chunqiang Tang</i>	

Research Track 11 — Best Paper Candidates

A Generic Framework for Application Configuration Discovery with Pluggable Knowledge	236
<i>Fan Jing Meng, Xuejun Zhuo, Bo Yang, Jing Min Xu, Pu Jin, Ajay Apte, and Joe Wigglesworth</i>	
Data On-Boarding in Federated Storage Clouds	244
<i>Gil Vernik, Alexandra Shulman-Peleg, Sebastian Dippl, Ciro Formisano, Michael C. Jaeger, Elliot K. Kolodner, and Massimo Villari</i>	

Research Track 12 — Big Data

Elephant, Do Not Forget Everything! Efficient Processing of Growing Datasets	252
<i>Jörg Schäd, Jorge-Arnulfo Quianeé-Ruiz, and Jens Dittrich</i>	
Multi-query Unification for Generating Efficient Big Data Processing Components from a DFD	260
<i>Kosaku Kimura, Yoshihide Nomura, Hidetoshi Kurihara, Koji Yamamoto, and Rieko Yamamoto</i>	

Dragonfly: Cloud Assisted Peer-to-Peer Architecture for Multipoint Media Streaming Applications	269
<i>Erdinc Korpeoglu, Cetin Sahin, Divyakant Agrawal, Amr El Abbadi, Takeo Hosomi, and Yoshiki Seo</i>	

Research Track 13 — Modeling and Performance

CA-DAG: Communication-Aware Directed Acyclic Graphs for Modeling Cloud Computing Applications	277
<i>Dzmitry Kliazovich, Johnatan E. Pecero, Andrei Tchernykh, Pascal Bouvry, Samee U. Khan, and Albert Y. Zomaya</i>	
A Declarative Environment for Automatic Performance Evaluation in IaaS Clouds	285
<i>Matheus Cunha, Nabor Mendonca, and Americo Sampaio</i>	
Cloud Capability Estimation and Recommendation in Black-Box Environments Using Benchmark-Based Approximation	293
<i>Gueyoung Jung, Naveen Sharma, Frank Goetz, and Tridib Mukherjee</i>	

Applications and Experiences Track

Applications & Experience Track 1 — Cloud Storage

Actively Measuring Personal Cloud Storage	301
<i>Raúl Gracia-Tinedo, Marc Sánchez Artigas, Adrián Moreno-Martínez, Cristian Cotes, and Pedro García López</i>	
Scrutinizing the State of Cloud Storage with Cloud-RAID: A Secure and Reliable Storage Above the Clouds	309
<i>Maxim Schnjakin and Christoph Meinel</i>	
Data Replication for Distributed Graph Processing	319
<i>Li-Yung Ho, Jan-Jan Wu, and Pangfeng Liu</i>	

Applications & Experience Track 2 — Data in the Cloud

Efficient and Customizable Data Partitioning Framework for Distributed Big RDF Data Processing in the Cloud	327
<i>Kisung Lee, Ling Liu, Yuzhe Tang, Qi Zhang, and Yang Zhou</i>	
Toward an Ecosystem for Precision Sharing of Segmented Big Data	335
<i>Mark Shtern, Bradley Simmons, Michael Smit, and Marin Litoiu</i>	

Applications & Experience Track 3 — Workload Management

Workload Classification Model for Specializing Virtual Machine Operating System	343
<i>Xinkui Zhao, Jianwei Yin, Zuoning Chen, and Sheng He</i>	
Geographical Load Balancing for Online Service Applications in Distributed Datacenters	351
<i>Hadi Goudarzi and Massoud Pedram</i>	
Moving Target with Load Balancing in P2P Cloud	359
<i>Hong Liu, Johnson Thomas, and Praveen Khethavath</i>	

Applications & Experience Track 4 — Cloud Security I

Secure Enterprise Data Deduplication in the Cloud	367
<i>Fatema Rashid, Ali Miri, and Isaac Woungang</i>	
ID Based Cryptography for Cloud Data Storage	375
<i>Nesrine Kaaniche, Aymen Boudguiga, and Maryline Laurent</i>	
Security Threats in Cloud Computing Models: Domains and Proposals	383
<i>Carlo Marcelo Revoredo da Silva, José Lutiano Costa da Silva, Ricardo Batista Rodrigues, Leandro Marques do Nascimento, and Vinicius Cardoso Garcia</i>	

Applications & Experience Track 5 — Cloud Security II

A Practical and Secure Multi-keyword Search Method over Encrypted Cloud Data	390
<i>Cengiz Orencik, Murat Kantarcioglu, and Erkay Savas</i>	
Access Protocols in Data Partitioning Based Cloud Storage	398
<i>Yunqi Ye, Liangliang Xiao, Yinzi Chen, I-Ling Yen, Farokh Bastani, and Ing-Ray Chen</i>	
Privacy-Preserving Collaborative Filtering on the Cloud and Practical Implementation Experiences	406
<i>Anirban Basu, Jaideep Vaidya, Hiroaki Kikuchi, and Theo Dimitrakos</i>	

Applications & Experience Track 6 — Cloud Performance

Smart CloudBench—Automated Performance Benchmarking of the Cloud	414
<i>Mohan Baruwal Chhetri, Sergei Chichin, Quoc Bao Vo, and Ryszard Kowalczyk</i>	
Improving Wide-Area Replication Performance through Informed Leader Election and Overlay Construction	422
<i>Syed Kewaan Ejaz, Diogo Behrens, Thomas Knauth, and Christof Fetzer</i>	
Elastic Resources Framework in IaaS, Preserving Performance SLAs	430
<i>Mohit Dhingra, J. Lakshmi, S.K. Nandy, Chiranjib Bhattacharyya, and K. Gopinath</i>	

Applications & Experience Track 7 — Cloud QoS

Design and Implementation of Effective Checkpointing for Multithreaded Applications on Future Clouds	438
<i>Itthichok Jangjaimon and Nian-Feng Tzeng</i>	
Fault Tolerance as a Service	446
<i>Bipin B. Nandi, Himadri Sekhar Paul, Ansuman Banerjee, and Sasthi C. Ghosh</i>	
Incorporating Uncertainty into In-Cloud Application Deployment Decisions for Availability	454
<i>Qinghua Lu, Xiwei Xu, Liming Zhu, Len Bass, Zhanwen Li, Sherif Sakr, Paul L. Bannerman, and Anna Liu</i>	

Applications & Experience Track 8 — Cloud Deployment

Capturing Customers' Requirements towards Mixed-Tenancy Deployments of SaaS-Applications	462
<i>Stefan T. Ruehl, Holger Wache, and Stephan A. W. Verclas</i>	
TREXCLOUD: Java EE IaaS Cloud Deployment Made Easy	470
<i>Roberto Costa Lima Jr, Ricardo Hollanda Filho, Américo Sampaio, and Nabor Mendonça</i>	
Enabling Dynamic Deployment of Cloud Applications Using a Modular and Extensible PaaS Environment	478
<i>Johannes Wettinger, Vasilios Andrikopoulos, Steve Strauch, and Frank Leymann</i>	

Applications & Experience Track 9 — Evaluation of Cloud Services

Building Communicating Web Applications Leveraging Endpoints and Cloud Resource Service	486
<i>Kundan Singh and Venkatesh Krishnaswamy</i>	
An Evaluation of Cassandra for Hadoop	494
<i>Elif Dede, Bedri Sendir, Pinar Kuzlu, Jessica Hartog, and Madhusudhan Govindaraju</i>	
Towards Payment-Bound Analysis in Cloud Systems with Task-Prediction Errors	502
<i>Sheng Di, Cho-Li Wang, Derrick Kondo, and Guodong Han</i>	

Applications & Experience Track 10 — Cloud Cost Optimizations I

A Lightweight Model for Estimating Energy Cost of Live Migration of Virtual Machines	510
<i>Anja Strunk</i>	
Cost and Utilization Optimization of Amazon EC2 Instances	518
<i>P. Kokkinos, T.A. Varvarigou, A. Kretsis, P. Soumplis, and E.A. Varvarigos</i>	
Optimization of Electricity and Server Maintenance Costs in Hybrid Cooling Data Centers	526
<i>Shaoming Chen, Yue Hu, and Lu Peng</i>	

Applications & Experience Track 11 — Cloud Cost Optimizations II

Labor Cost Reduction with Cloud: An End-to-End View	534
<i>Murthy Devarakonda, Purnendu Gupta, and Chunqiang Tang</i>	
Tape Cloud: Scalable and Cost Efficient Big Data Infrastructure for Cloud Computing	541
<i>Varun S. Prakash, Yuanfeng Wen, and Weidong Shi</i>	
Addressing Data and User Mobility Challenges in the Cloud	549
<i>Lingfeng Chen and Doan B. Hoang</i>	

Applications & Experience Track 12 — Migration of Cloud Services

Implementing Scalable, Network-Aware Virtual Machine Migration for Cloud Data Centers	557
<i>Fung Po Tso, Gregg Hamilton, Konstantinos Oikonomou, and Dimitrios P. Pezaros</i>	
Supporting the Migration of Applications to the Cloud through a Decision Support System	565
<i>Vasilios Andrikopoulos, Zhe Song, and Frank Leymann</i>	

Assisting Cloud Service Migration Using Software Adaptation Techniques	573
<i>Javier Miranda, Joaquín Guillén, Juan Manuel Murillo, and Carlos Canal</i>	

Applications & Experience Track 13 — Cloud Networking

Path Consolidation for Dynamic Right-Sizing of Data Center Networks	581
<i>Muhammad Abdullah Adnan and Rajesh Gupta</i>	
DR2: Dynamic Request Routing for Tolerating Latency Variability in Online Cloud Applications	589
<i>Jieming Zhu, Zibin Zheng, and Michael R. Lyu</i>	
Towards Network Virtualization Management for Federated Cloud Systems	597
<i>Mon-Yen Luo, Shang-Wei Lin, and Jun-Yi Chen</i>	

Applications & Experience Track 14 — Cloud Evaluation Model

Evaluation Criteria for Cloud Services	598
<i>Pedro Costa, João Paulo Santos, and Miguel Mira da Silva</i>	
Cloud Maturity Model	606
<i>André Duarte and Miguel Mira da Silva</i>	

Applications & Experience Track 15 — Cloud Frameworks

Deriving a Distributed Cloud Proxy Architecture for Managed Cloud Service Consumption	614
<i>Dirk Thatmann, Mathias Slawig, Sebastian Zickau, and Axel Küpper</i>	
Cloud-as-a-Gift: Effectively Exploiting Personal Cloud Free Accounts via REST APIs	621
<i>Raúl Gracia-Tinedo, Marc Sánchez Artigas, and Pedro García López</i>	
Architecture and Key Issues of IMS-Based Cloud Computing	629
<i>Wei Zhang, Weimin Lei, Xiao Chen, and Shaowei Liu</i>	

Applications & Experience Track 16 — Cloud Applications

Cloud-Based Application Whitelisting	636
<i>Jennia Hizver and Tzi-cker Chiueh</i>	
DartCSim+: Enhanced CloudSim with the Power and Network Models Integrated	644
<i>Xiang Li, Xiaohong Jiang, Kejiang Ye, and Peng Huang</i>	

Applications & Experience Track 17 — Cloud Resource Management

Chisel: A Resource Savvy Approach for Handling Skew in MapReduce Applications	652
<i>Prateek Dhawalia, Sriram Kailasam, and Dharanipragada Janakiram</i>	
QoS-Aware VM Placement in Multi-domain Service Level Agreements Scenarios	661
<i>Kuan Lu, Ramin Yahyapour, Philipp Wieder, Constantinos Kotsokalis, Edwin Yaqub, and Ali Imran Jehangiri</i>	

Applications & Experience Track 18 — Social Clouds

Broker Emergence in Social Clouds	669
<i>Ioan Petri, Magdalena Punceva, Omer F. Rana, and George Theodorakopoulos</i>	
Scale-Space Filtering for Workload Analysis and Forecast	677
<i>Gustavo A.C. Santos, José G.R. Maia, Leonardo O. Moreira, Flávio R.C. Sousa, and Javam C. Machado</i>	
Scaling Archived Social Media Data Analysis Using a Hadoop Cloud	685
<i>Javier Conejero, Peter Burnap, Omer Rana, and Jeffrey Morgan</i>	

Applications & Experience Track 19 — Cloud Management

PaaS-Independent Provisioning and Management of Applications in the Cloud	693
<i>Mohamed Sellami, Sami Yangui, Mohamed Mohamed, and Samir Tata</i>	
A Proactive Cloud Management Architecture for Private Clouds	701
<i>Dapeng Dong and John Herbert</i>	
Concurrency Optimized Task Scheduling for Workflows in Cloud	709
<i>Yihong Gao, Huadong Ma, Haitao Zhang, Xiangqi Kong, and Wangyang Wei</i>	

Applications & Experience Track 20 — Energy Management

An Architectural Framework for Enforcing Energy Management Policies in Cloud	717
<i>Marwah M. Alansari and Behzad Bordbar</i>	
Understanding Tradeoffs between Power Usage and Performance in a Virtualized Environment	725
<i>James William Smith and Ian Sommerville</i>	
User-Based CPU Verification Scheme for Public Cloud Computing	732
<i>Huanyang Zheng, Kangkang Li, Chiu C. Tan, and Jie Wu</i>	

Industry Track

Industry Track 1 — Cloud Scalability Management

Efficient and Scalable IoT Service Delivery on Cloud	740
<i>Fei Li, Michael Voegler, Markus Claessens, and Schahram Dustdar</i>	
Dynamic Scalability of a Consolidation Service	748
<i>Ahmed El Rheddane, Noël De Palma, Fabienne Boyer, Frédéric Dumont, Jean-Marc Menaud, and Alain Tchana</i>	
A Queueing Model to Achieve Proper Elasticity for Cloud Cluster Jobs	755
<i>Khaled Salah</i>	

Industry Track 2 — Cloud Fault Tolerance and Availability

Energy Efficient Fault Tolerance for High Performance Computing (HPC) in the Cloud	762
<i>Ifeanyi P. Egwutuoha, Shiping Chen, David Levy, Bran Selic, and Rafael Calvo</i>	

Experiences with a Private Enterprise Cloud: Providing Fault Tolerance and High Availability for Interactive EDA Applications	770
<i>Vinaya Kamath, Ravi Giri, and Rajeev Muralidhar</i>	
Achieving High Availability at the Application Level in the Cloud	778
<i>Ali Kanso and Yves Lemieux</i>	

Industry Track 3 — Cloud Quality Control

Advanced Quality Measurement for Cloud Services	786
<i>Anja Fiegler, André Zwanziger, Niko Zenker, Reiner Dumke, and Robert Neumann</i>	
MAT: A Migration Assessment Toolkit for PaaS Clouds	794
<i>Vibhu Saujanya Sharma, Shubhashis Sengupta, and Satish Nagasamudram</i>	
Provenance Monitoring in the Cloud	802
<i>Yingmin Li and Omar Boucelma</i>	

Industry Track 4 — Cloud Workload

Workload Predicting-Based Automatic Scaling in Service Clouds	810
<i>Jingqi Yang, Chuanchang Liu, Yanlei Shang, Zexiang Mao, and Junliang Chen</i>	
Workload Monitoring in Hybrid Clouds	816
<i>Vijay K. Naik, Kirk Beaty, Norbert Vogl, and John Sanchez</i>	
Residency-Aware Virtual Machine Communication Optimization: Design Choices and Techniques	823
<i>Yi Ren, Ling Liu, Qi Zhang, Qingbo Wu, Jie Wu, Jinzhu Kong, Jianbo Guan, and Huadong Dai</i>	

Industry Track 5 — Cloud Modeling

Provisioning Legacy Simulation Applications in Product Lifecycle Management via a Cloud Platform	831
<i>Liangzhao Zeng, Charles Perng, and Ajay Mohindra</i>	
Performance Modeling of MapReduce Jobs in Heterogeneous Cloud Environments	839
<i>Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo</i>	
Result Integrity Check for MapReduce Computation on Hybrid Clouds	847
<i>Yongzhi Wang, Jinpeng Wei, and Mudhakar Srivatsa</i>	

Industry Track 6 — Cloud Analytics

Evaluation of a Server-Grade Software-Only ARM Hypervisor	855
<i>Alexey Smirnov, Mikhail Zhidko, Yingshiuan Pan, Po-Jui Tsao, Kuang-Chih Liu, and Tzi-Cker Chiueh</i>	
Machine Learning in Virtualization: Estimate a Virtual Machine’s Working Set Size	863
<i>Anna Melekhova</i>	
Analytics for Product Planning: In-Depth Interview Study with SaaS Product Managers	871
<i>Farnaz Fotrousi, Katayoun Izadyan, and Samuel A. Fricker</i>	

Industry Track 7 — Cloud Models

Models and Guidelines for Dimensioning Private Clouds	880
<i>Laura Brandwacht, Erik Meeuwissen, Hans van den Berg, and Miroslav Živkovic</i>	
Towards Model-Driven Provisioning, Deployment, Monitoring, and Adaptation of Multi-cloud Systems	887
<i>Nicolas Ferry, Alessandro Rossini, Franck Chauvel, Brice Morin, and Arnor Solberg</i>	
Cloud Atlas: A Software Defined Networking Abstraction for Cloud to WAN Virtual Networking	895
<i>Stephan Baucke, Racha Ben Ali, James Kempf, Ramesh Mishra, Franco Ferioli, and Angelo Carossino</i>	

Industry Track 8 — Data in Cloud

Complex Queries in a Shared Multi User Relational Cloud Database	903
<i>Vasily Sidorov and Wee Keong Ng</i>	
HGrid: A Data Model for Large Geospatial Data Sets in HBase	910
<i>Dan Han and Eleni Stroulia</i>	

Industry Track 9 — Cloud Applications

Secure Outsourcing of Matrix Operations as a Service	918
<i>Mohamed Nassar, Abdelkarim Erradi, Farida Sabri, and Qutaibah M. Malluhi</i>	
Incident Notification Process as a Service for Electricity Supply Systems	926
<i>Lai Xu, Paul de Vrieze, and Nan Jiang</i>	
Digital Library Engine: Adapting Digital Library for Cloud Computing	934
<i>Weiming Lu, Liangju Zheng, Jian Shao, Baogang Wei, and Yueting Zhuang</i>	

Work-in-Progress Track

Work-in-Progress Track 1 — Workload Scheduling and Resource Allocation

A Theoretical Approach to the Data-Oriented Scheduling Strategies across Multiple Clouds	942
<i>Yongzheng Ma and Kai Nan</i>	
A Dynamic Virtual Resource Renting Method for Maximizing the Profit of Cloud Service Provider under SLA Constraint	944
<i>Ao Zhou, Shang-guang Wang, Qi-bo Sun, Hua Zou, and Fang-chun Yang</i>	
QoS-Aware, Cost-Efficient Selection of Cloud Data Centers	946
<i>Ronny Hans, Ulrich Lampe, and Ralf Steinmetz</i>	
Optimal Resource Allocation to Host Web Services in Cloud	948
<i>Marjan Gusev, Sasko Ristov, Goran Velkoski, and Monika Simjanoska</i>	
iVMp: An Interactive VM Placement Algorithm for Agile Capital Allocation	950
<i>Xi Li, Anthony Ventresque, Nicola Stokes, James Thorburn, and John Murphy</i>	

Work-in-Progress Track 2 — Security, Privacy, and Trustworthiness

Privacy-Preserved Mobile Sensing through Hybrid Cloud Trust Framework	952
<i>Joy Ying Zhang, Pang Wu, Jiang Zhu, Hao Hu, and Flavio Bonomi</i>	
Vulnerability Detection of Android System in Fuzzing Cloud	954
<i>Jingzheng Wu, Yanjun Wu, Mutian Yang, Zhifei Wu, and Yongji Wang</i>	
Framework for Assessing Cloud Trustworthiness	956
<i>Curt Wu and Steve Marotta</i>	
Towards a Stakeholder-Oriented Taxonomical Approach for Secure Cloud Computing	958
<i>Abdullah Abuhussein, Harkeerat Bedi, and Sajjan Shiva</i>	

Work-in-Progress Track Session 3 — Monitoring, Management, and Provisioning (I)

On the Accuracy of Time Measurements in Virtual Machines	960
<i>Ulrich Lampe, Markus Kiesemann, André Miede, Sebastian Zöller, and Ralf Steinmetz</i>	
Monitoring and Controlling Research Experiments in Cloud Testbeds	962
<i>Andreas Wolke and Deepak Srivastav</i>	
Dynamic Rule Based SLA Management in Clouds	964
<i>Nikoletta Mavrogeorgi, Spyridon Gogouvitis, Athanasios Voulodimos, Dimosthenis Kiriazis, Theodora Varvarigou, Alexandra Shulman-Peleg, and Elliot K. Kolodner</i>	
SLA Approach for “Cloud as a Service”	966
<i>Ines Ayadi, Noemie Simoni, and Tatiana Aubonnet</i>	
An Auto Window Filter Algorithm for Resource Monitoring in Cloud	968
<i>Rongheng Lin, Yao Zhao, Budan Wu, and Hua Zou</i>	

Work-in-Progress Track Session 4 — Monitoring, Management, and Provisioning (II)

Avoiding Lock-In: Timely Reconfiguration of a Virtual Cloud Platform on Top of Multiple PaaS and IaaS Providers	970
<i>Paulo Rupino da Cunha, Paulo Melo, and Catarina Ferreira da Silva</i>	
Refundable Service through Cloud Brokerage	972
<i>Al Amin Hossain and Eui-Nam Huh</i>	
Towards the Automatic Detection of Efficient Computing Assets in a Heterogeneous Cloud Environment	974
<i>Jesus Omana Iglesias, Nicola Stokes, Anthony Ventresque, Liam Murphy, and James Thorburn</i>	
Interactive Exploitation of Nonuniform Cloud Resources for LHC Computing at CERN	976
<i>Dario Berzano, Jakob Blomer, Predrag Buncic, Gerardo Ganis, Georgios Lestaris, and René Meusel</i>	

Author Index