

2013 IEEE World Congress on Services

(SERVICES 2013)

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



**IEEE Catalog Number: CFP13SER-POD
ISBN: 978-1-4799-0412-9**

2013 IEEE Ninth World Congress on Services

SERVICES 2013

Table of Contents

Message from the General Chairs	xii
Message from the Workshop Chairs	xiii
SERVICES 2013 Organizing Committee	xiv
Message from the PWT 2013 Organizers	xvii
PWT 2013 Program Committee	xviii
IEEE Computer Society Technical Committee on Services	
Computing	xix
External Reviewers	xx
Keynote Abstracts	xxi
Plenary Panel Abstracts	xxiii
Tutorials	xxxi

SWF—IEEE 2013 International Workshop on Scientific Workflows

SWF Session 1

Storing, Indexing and Querying Large Provenance Data Sets as RDF Graphs in Apache HBase	1
<i>Artem Chebotko, John Abraham, Pearl Brazier, Anthony Piazza, Andrey Kashlev, and Shiyong Lu</i>	
Towards a Collaborative Simulation Platform for Renewable Energy Systems	9
<i>Shuai Lu, Yan Liu, and Da Meng</i>	
A Dataflow Language for Decentralised Orchestration of Web Service Workflows	13
<i>Ward Jaradat, Alan Dearle, and Adam Barker</i>	

SWF Session 2

A Workflow Framework for Big Data Analytics: Event Recognition in a Building	21
<i>Changbing Chen, Xia Yang, Bong Zoebir, Sivadon Chaisiri, and Bu-Sung Lee</i>	
Bridging VisTrails Scientific Workflow Management System to High Performance Computing	29
<i>Jia Zhang, Petr Votava, Tsengdar J. Lee, Owen Chu, Clyde Li, David Liu, Kate Liu, Norman Xin, and Ramakrishna Nemani</i>	

FOSEC—IEEE 2013 International Workshop on the Future of Software Engineering for/in the Cloud

Exploring Cloud Computing for Large-Scale Scientific Applications	37
<i>Guang Lin, Binh Han, Jian Yin, and Ian Gorton</i>	
CEEM: A Practical Methodology for Cloud Services Evaluation	44
<i>Zheng Li, Liam O'Brien, and He Zhang</i>	
A Framework for Multi-cloud Cooperation with Hardware Reconfiguration Support	52
<i>Khaleel Mershad, Abdul Rahman Kaitoua, Hassan Artail, Mazen A.R. Saghir, and Hazem Hajj</i>	
Cloud Based Architecture for Enabling Intuitive Decision Making	60
<i>Brian Xu, Sathish Alampalayam Kumar, and Manonmani Kumar</i>	

SPEAC—IEEE 2013 International Workshop on Security and Privacy Engineering Assurance

SPEAC Session 1

SOBA: A Services-Oriented Browser Architecture with Distributed URL-Filtering Mechanisms for Teenagers	67
<i>Aili Wang, Chao Wang, Xi Li, and Xuehai Zhou</i>	
Towards a Forensic-Based Service Oriented Architecture Framework for Auditing of Cloud Logs	75
<i>Sean Thorpe, Tyrone Grandison, Arnett Campbell, Janet Williams, Khalilah Burrell, and Indrajit Ray</i>	

SPEAC Session 2

Workflow Operational Assurance Platform for Security-by-Design Certified Service-Based Coalitions	84
<i>Javier Espinar, Antonio Maña, and Hristo Koshutanski</i>	
Towards the Certification of Cloud Services	92
<i>Stelvio Cimato, Ernesto Damiani, Francesco Zavatarelli, and Renato Menicocci</i>	
Bringing Common Criteria Certification to Web Services	98
<i>Samuel Paul Kaluvuri, Michele Bezzi, and Yves Roudier</i>	

SPEAC Session 3

Bridging the GAP between Software Certification and Trusted Computing for Securing Cloud Computing	103
<i>Antonio Muñoz and Antonio Maña</i>	
Managing End-to-End Security Risks with Fuzzy Logic in Service-Oriented Architectures	111
<i>Youakim Badr and Soumya Banerjee</i>	
Building a Compliance Vocabulary to Embed Security Controls in Cloud SLAs	118
<i>Matthew L. Hale and Rose Gamble</i>	

PWT—IEEE 2013 International Workshop on Personalized Web Tasking

PWT Session 1

Going Beyond Web Browsing to Web Tasking: Transforming Web Users from Web Operators to Web Supervisors	126
<i>Joanna W. Ng and Diana H. Lau</i>	
Social Ontology and Semantic Actions: Enabling Social Networking Services for Distributed Web Tasking	131
<i>Joanna W. Ng and Diana H. Lau</i>	

PWT Session 2

Recommendation-Assisted Personal Web	136
<i>Haiming Wang and Kenny Wong</i>	
Towards Smarter Task Applications	141
<i>Przemek Lach and Hausi A. Müller</i>	
Towards Personalized Web-Tasking: Task Simplification Challenges	147
<i>Lorena Castañeda, Hausi A. Müller, and Norha M. Villegas</i>	

PWT Session 3

PALTask Chat: A Personalized Automated Context Aware Web Resources Listing Tool	154
<i>Pratik Jain, Andreas Bergen, Lorena Castañeda, and Hausi A. Müller</i>	
Using Rules for Web Service Client Side Testing	158
<i>Nabil El Ioini, Alberto Sillitti, and Giancarlo Succi</i>	
Towards Families of Personalized Mobile Applications	166
<i>Eleni Stroulia, Dylan Gibbs, and Blerina Bazelli</i>	

PWT Session 4

Personalized Mobile Web Service Discovery	170
<i>Khalid Elgazzar, Patrick Martin, and Hossam S. Hassanein</i>	
An Intelligent Framework for Auto-filling Web Forms from Different Web Applications	175
<i>Shaohua Wang, Ying Zou, Bipin Upadhyaya, and Joanna Ng</i>	
Towards a Goal Driven Task Personalization Specification Framework	180
<i>George Chatzikonstantinou, Michael Athanasopoulos, and Kostas Kontogiannis</i>	

SDC—IEEE 2013 International Workshop on Services Discovery and Composition

SDC Session 1

Improving Interoperability of Digital Certificates for Software & Services	185
<i>Marioli Montenegro and Antonio Maña</i>	
Parallel Matrix Multiplication Algorithm Based on Vector Linear Combination Using MapReduce	193
<i>Jian-Hua Zheng, Liang-Jie Zhang, Rong Zhu, Ke Ning, and Dong Liu</i>	
Adoption of Cloud Computing Services by Public Sector Organisations	201
<i>Martin Bellamy</i>	

SDC Session 2

Service Discovery Using Ontology Encoding Enhanced by Similarity of Information Content	209
<i>Jiuyun Xu, Ruru Zhang, Kunming Xing, and Stephan Reiff-Marganiec</i>	
HRPaaS: A Handwriting Recognition Platform as a Service Based on Middleware and the HTTP API	215
<i>Desheng Li, Lianwen Jin, and Yin Zhang</i>	
ORBI: An Internet Service for Self-Employed Professionals	221
<i>Stamatia Rizou and George Angouras</i>	

SDC Session3

Enhanced Ant Colony Algorithm for Cost-Aware Data-Intensive Service Provision	227
<i>Lijuan Wang, Jun Shen, and Ghassan Beydoun</i>	
The New Cloud on the Horizon—Cloud Brokers	235
<i>Melvin B. Greer Jr.</i>	

CSAW—IEEE 2013 International Workshop on Cloud Security Auditing

CSAW Session 1

Cloud Verifier: Verifiable Auditing Service for IaaS Clouds	239
<i>Joshua Schiffman, Yuqiong Sun, Hayawardh Vijayakumar, and Trent Jaeger</i>	
QoS Auditing for Evaluation of SLA in Cloud-based Distributed Services	247
<i>Kaliappa Ravindran</i>	
Toward a Real-Time Cloud Auditing Paradigm	255
<i>Robert Nix, Murat Kantarcioglu, and Sachin Shetty</i>	

CSAW Session 2

Auditing and Analysis of Network Traffic in Cloud Environment	260
<i>Sachin Shetty</i>	
Cloud Security Auditing Based on Behavioral Modeling	268
<i>Zachary Birnbaum, Bingwei Liu, Andrey Dolgikh, Yu Chen, and Victor Skormin</i>	
Control Theoretic Adaptive Monitoring Tools	274
<i>David Reynolds and Mina Guirguis</i>	

CSAW Session 3

Data Integrity Evaluation in Cloud Database-as-a-Service	280
<i>Puya Ghazizadeh, Ravi Mukkamala, and Stephan Olariu</i>	
Auditing CPU Performance in Public Cloud	286
<i>Qiang Huang, Lin Ye, Xinran Liu, and Xiaojiang Du</i>	
Simultaneously Supporting Privacy and Auditing in Cloud Computing Systems	290
<i>Tyrone Grandison, Sean Thorpe, and Leon Stenneth</i>	
Auditing Requirements for Implementing the Chinese Wall Model in the Service Cloud	298
<i>Sarra M. Alqahtani, Rose Gamble, and Indrakshi Ray</i>	

FM-S&C—IEEE 2013 International Workshop on Formal Methods in Services and Cloud Computing

FM-S&C Session 1

Towards Formal Modeling and Verification of Cloud Architectures: A Case Study on Hadoop	306
<i>G. Satya Reddy, Yuzhang Feng, Yang Liu, Jin Song Dong, Sun Jun, and Rajaraman Kanagasabai</i>	
Research of Intrusion Detection System on Android	312
<i>Fangfang Yuan, Lidong Zhai, Yanan Cao, and Li Guo</i>	
A Design and Verification Framework for Service Composition in the Cloud	317
<i>Matthew L. Hale, Michael T. Gamble, and Rose F. Gamble</i>	

FM-S&C Session 2

Efficient Formal Verification in Banking Processes	325
<i>Antonella Santone, Valentina Intilangelo, and Domenico Raucci</i>	
A User Requirements Oriented Semantic Web Services Composition Framework	333
<i>Sana Baccar, Mohsen Rouached, and Mohamed Abid</i>	
An End-to-End QoS Mapping Approach for Cloud Service Selection	341
<i>Raed Karim, Chen Ding, and Ali Miri</i>	

FM-S&C Session 3

Towards DaaS 2.0: Enriching Data Models	349
<i>Jonathan Martí, Daniel Gasull, Anna Queral, and Toni Cortes</i>	

CloudPerf—IEEE 2013 International Workshop on Performance Aspects of Cloud and Service Virtualization

CloudPerf Session 1

Unitizing Performance of IaaS Cloud Deployments	356
<i>Philipp Berndt and Johannes Watzl</i>	
BIGSIR: A Bipartite Graph Based Service Recommendation Method	363
<i>Bo Jiang, Xiao-xiao Zhang, Wei-feng Pan, and Bo Hu</i>	

CloudPerf Session 2

Analysing Virtual Machine Usage in Cloud Computing	370
<i>Yi Han, Jeffrey Chan, and Christopher Leckie</i>	
Impacts of Scheduling Algorithms in Services on Collective End-to-End Execution Time	
Characteristics of Web Service Workflows	378
<i>Xiang Li, Yushun Fan, Le Xin, Keman Huang, Yihang Luo, and Yi Liu</i>	
Introducing a Distributed Cloud Architecture with Efficient Resource Discovery and Optimal Resource Allocation	386
<i>Praveen Khethavath, Johnson Thomas, Eric Chan-Tin, and Hong Liu</i>	

CHIS—IEEE 2013 International Workshop on Computational and Hybrid Intelligence for Service Computing

CHIS Session 1

Adaptive Web Services Composition Using Q-Learning in Cloud	393
<i>Lei Yu, Wang Zhili, Meng Lingli, Wang Jiang, Luoming Meng, and Qiu Xue-song</i>	
An Energy-Efficient Online Parallel Scheduling Algorithm for Cloud Data Centers	397
<i>Wenhong Tian, Ruini Xue, Jun Cao, Qin Xiong, and Yunjun Hu</i>	
A Hierarchical Cloud Pricing System	403
<i>Zhijie Li and Ming Li</i>	

CP—IEEE 2013 International Workshop on Cloud Provisioning

CP Session 1

Research on Pricing Model of Cloud Storage	412
<i>Ning Li, Liang-Jie Zhang, Ping Xu, Li Wang, Jianhua Zheng, and Yifu Guo</i>	
Viral Marketing and Its Application in Enterprise Drive Operation	420
<i>Li Wang, Liang-Jie Zhang, Ning Li, Dong Liu, Yi-Fu Guo, Jian-Hua Zheng, Bo Hu, and Ning Ke</i>	

Towards Real-Time Analytics in the Cloud	428
<i>Amr Osman, Mohamed El-Refaey, and Ayman Elnaggar</i>	

CP Session 2

A Game Theory of Cloud Service Deployment	436
<i>Zexiang Mao, Jingqi Yang, Yanlei Shang, Chuanchang Liu, and Junliang Chen</i>	
Is Your Cloud-Hosted Database Truly Elastic?	444
<i>Sherif Sakr and Anna Liu</i>	
SaaS Authentication Middleware for Mobile Consumers of IaaS Cloud	448
<i>Richard K. Lomotey and Ralph Deters</i>	

CloudCup Workshop

CloudAdvisor: A Recommendation-as-a-Service Platform for Cloud Configuration and Pricing	456
<i>Gueyoung Jung, Tridib Mukherjee, Shruti Kunde, Hyunjoo Kim, Naveen Sharma, and Frank Goetz</i>	
Pattern-Based Deployment Service for Next Generation Clouds	464
<i>Hongbin Lu, Mark Shtern, Bradley Simmons, Michael Smit, and Marin Litoiu</i>	
Enabling an Enhanced Data-as-a-Service Ecosystem	472
<i>Michael Smit, Mark Shtern, Bradley Simmons, and Marin Litoiu</i>	
EC2BargainHunter: It's Easy to Hunt for Cost Savings on Amazon EC2!	480
<i>Rajaraman Kanagasabai, Le Duy Ngan, Yuzhang Feng, Anitha Veeramani, Joel Koo Chong En, Chan Chee Keong, Flora S. Tsai, and Artur Andrzejak</i>	
RMORM: A framework of Multi-objective Optimization Resource Management in Clouds	488
<i>Wen Yun Dai, Haopeng Chen, Wenting Wang, and Xi Chen</i>	

Author Index	495
---------------------------	-----