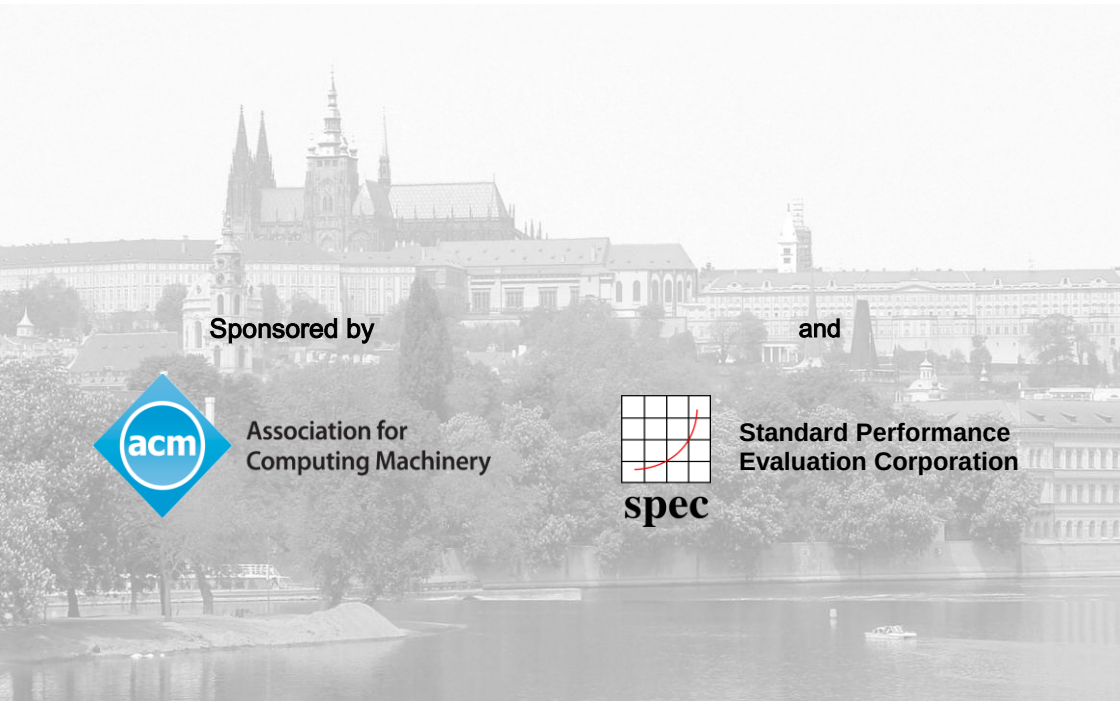
4TH ACM/SPEC
INTERNATIONAL CONFERENCE
ON PERFORMANCE ENGINEERING

CONFERENCE PROGRAM

ICPE 2013

APRIL 20-26, 2013
PRAGUE, CZECH REPUBLIC



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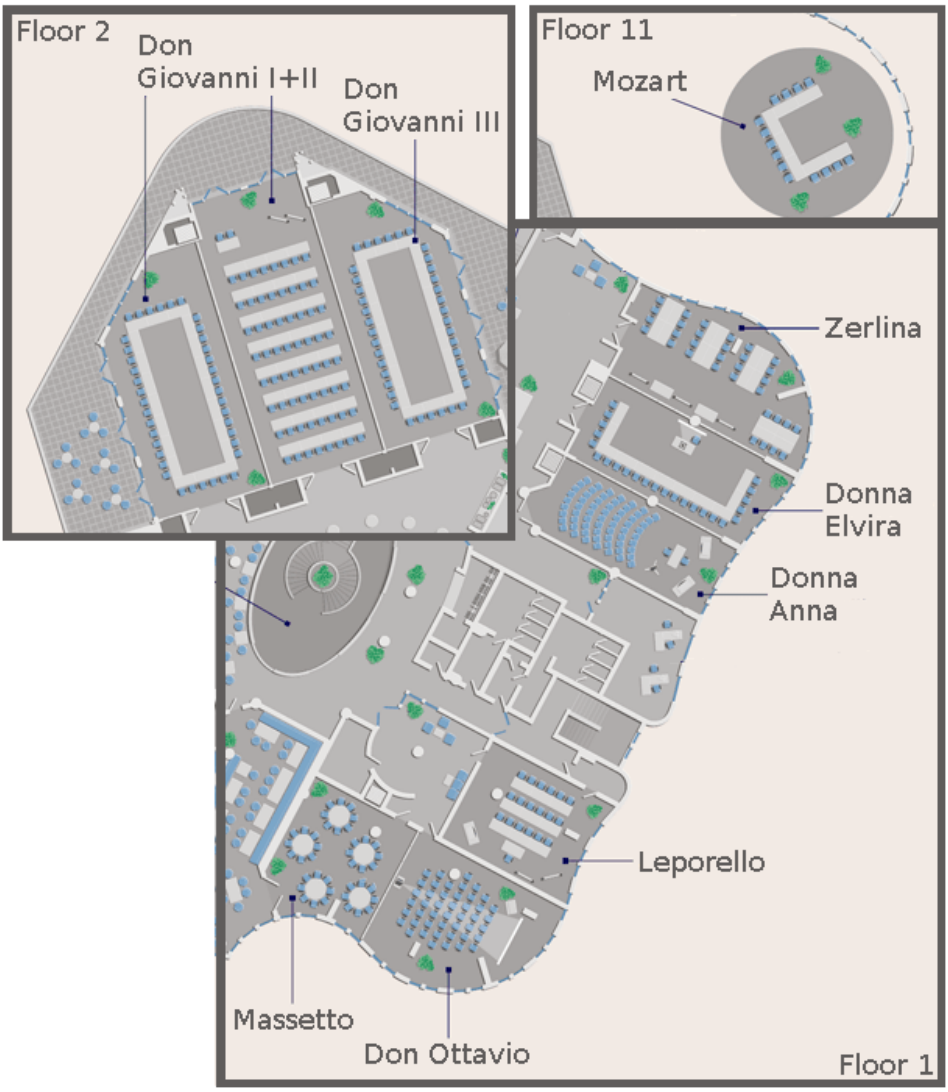
Floor 2
Don Giovanni I+II
Don Giovanni III
Floor 11
Mozart
Zerlina
Donna Elvira
Donna Anna
Leporello
Massetto
Don Ottavio
Floor 1

Sa 20	Su 21	Mo 22	Tu 23	We 24	Th 25	Fr 26
■ **HotTopiCS Workshop** ZERLINA Room						
		■ **MultiCloud Workshop** MOZART Room				
	■ **Tutorials** MASSETTO & DON OTTAVIO Rooms					
		■ **Main Conference** DON GIOVANNI Hall				
			■ **SPEC Open Systems Group** ■ **SPEC Research Group** BOARD Rooms			

Saturday, April 20, 2013

	HotTopiCS Workshop ZERLINA Room
9:00 - 9.30	**Registration** First Floor
9:30 - 11:00	**Welcome and Invited Talk** Alexandru Iosup
11:00 - 11:15	Coffee Break
11:15 - 12:45	**Cloud Management**
12:45 - 13:45	Lunch
13:45 - 15:15	**At the Edge of the Cloud**
15:15 - 15:30	Coffee Break
15:30 - 17:00	**Discussion**
19:30	Meeting Point for **Workshop Dinner** at Hotel Lobby

Sunday, April 21, 2013

	HotTopiCS	Tutorials	
	ZERLINA	MASSETTO	DON OTTAVIO
9:30 - 10:30	**Invited Talk** Sam Kounev	**Registration** First Floor	
10:30 - 10:45	Coffee Break		**Tutorial 1**
10:45 - 11:45	**Cloud Performance**		
11:45 - 12:00	**Cloud Techniques**		
12:00 - 12:45			Lunch
12:45 - 13:30	Lunch		
13:30 - 13:45		**Tutorial 2**	**Tutorial 3** Part 1
13:45 - 15:00			
15:00 - 15:30		Coffee Break	
15:30 - 17:00		**Tutorial 4**	**Tutorial 3** Part 2
18:00 - 20:30	**Registration** Hotel Lobby		
19:30 - 20:30	**Welcome Drink** Amadeus Bar		

Monday, April 22, 2013

	Main Conference	MultiCloud Workshop
	DON GIOVANNI Hall	MOZART Room
8:00 - 9:00	**Registration** Hotel Lobby	
9:00 - 10:00	**Welcome Address** **Keynote** Prashant Shenoy	
10:00 - 11:15	**Research Track** **Best Paper Candidates**	**Multi-Cloud Background and General Issues**
11:15 - 11:40	Coffee Break	Coffee Break
11:40 - 12:40	**Performance Modeling and Evaluation**	**Development of Multi-Cloud Applications**
12:40 - 14:00	Lunch	
14:00 - 16:00	**Software Performance Modeling**	**Monitoring and Execution Support**
16:00 - 16:35	Coffee Break & **Poster** & **Demo Session**	
16:35 - 18:05	**Performance Analysis and Benchmarking I**	**Cloud Migration and Panel Discussion**
18:30	**ICPE Steering Committee Meeting** LEPORELLO Room	

Tuesday, April 23, 2013

	Main Conference DON GIOVANNI Hall
8:30 - 9.30	**Keynote** Len Bass
9:30 - 10:35	**Performance Analysis and Benchmarking II**
10:35 - 11:00	Coffee Break
11:00 - 12:40	**Performance Modeling and Prediction**
12:40 - 14:00	Lunch
14:00 - 16:00	**Performance in Cloud, Virtualized and Multi-Core Systems**
16:00 - 16:35	Coffee Break & **Poster** & **Demo Session**
16:35 - 18:15	**Vision & Work in Progress**
19:00	Meeting Point for **Conference Dinner** Hotel Lobby

Wednesday, April 24, 2013

	Main Conference DON GIOVANNI Hall
8:30 - 9:30	**Keynote** Yuqing Gao
9:30 - 10:10	**Industry Track Best Paper Candidates**
10:10 - 10:35	Coffee Break
10:35 - 12:05	**Performance Analysis and Benchmarking II**
12:05 - 12:15	**Closing Address**

For wireless internet access during the conference, connect to the **Dorint Hotel Don Giovanni** network, launch your web browser and use **ICPE2013** as both username and password when prompted.

Welcome and Invited Talk

9:30 - 9:40 Welcome

9:40 - 11:00 **Invited Talk: IaaS Cloud Benchmarking: Approaches, Challenges, and Experience.** Alexandru Iosup

11:00 - 11:15 Coffee Break

Session 1: Cloud Management

11:15 - 11:45 **On-line Bayesian Context Change Detection in Web Service Systems.** Jakub Tomczak and Maciej Zieba

11:45 - 12:15 **Addressing Self-Management in Cloud Platforms: a Semantic Sensor Web Approach.** Rustem Dautov, Iraklis Paraskakis and Dimitrios Kourtesis

12:15 - 12:45 **Behavioral Model for Cloud aware Load and Power Management.** Kiril Schröder and Wolfgang Nebel

12:45 - 13:45 Lunch

Session 2: At the Edge of the Cloud

13:45 - 14:15 **Cloud storage pricing: a comparison of current practices.** Maurizio Naldi and Loretta Mastroeni

14:15 - 14:45 **Decision support for partially moving applications to the Cloud – the Example of Business Intelligence.** Adrián Juan-Verdejo and Henning Baars

14:45 - 15:15 **Rusta: Elastic processing and storage at the edge of the cloud (position paper).** Steffen Viken Valvåg, Dag Johansen and Åge Kvalnes

15:15 - 15:30 Coffee Break

Session 3: Discussion

15:30 - 17:00 Discussion

Workshop Dinner

19:30 Meeting Point for Workshop Dinner

Sunday April 21 — HotTopiCS Workshop

Welcome and Invited Talk

9:30 - 10:30 **Invited Talk: RELATE: A Research Training Network on Engineering and Provisioning of Service-Based Cloud Applications.** Samuel Kounev

10:30 - 10:45 Coffee Break

Session 4: Cloud Performance

10:45 - 11:15 **Cloud-based performance testing: issues and challenges (position paper).** Junzan Zhou, Shanping Li, Zhen Zhang and Zhen Ye

11:15 - 11:45 **Cloud System Deployment and Performance Evaluation Tools for Distributed Databases (position paper).** Markus Klems and Hoàng Anh Lê

Session 5: Cloud Techniques

11:45 - 12:15 **OPENi – Future of a Consumer-centric Cloud-based Application Platform (position paper).** Robert Kleinfeld, Lukasz Radziwonowicz, Eric Robson, Leigh Griffin and Fenareti Lampathaki

12:15 - 12:45 **Towards a requirements-driven design of ensemble-based component systems (position paper).** Ilias Gerostathopoulos, Tomas Bures and Petr Hnetynka

12:45 - 13:45 Lunch

Sunday April 21 — Tutorials

10:30 - 12:00 **Hands on DiSL: The Java Bytecode Instrumentation Framework.** Lukáš Marek

12:00 - 13:30 Lunch

13.30 - 15:00 **Holistic Optimization of Distribution Automation Smart-Grid Designs using Survivability Modeling.** Alberto Avritzer, Anne Koziolek (Martens)

13:30 - 15:00 **Analysis of Concurrent Models with non-Markovian Temporal Parameters (part one).** Enrico Vicario

15:00 - 15:30 Coffee Break

15:30 - 17:00 **Analysis of Concurrent Models with non-Markovian Temporal Parameters (part two).** Enrico Vicario

15:30 - 17:00 **Use Case-Driven Performance Engineering without Concurrent Users.** Morten Heine Sørensen

Session 1: Multi-cloud Background and General Issues

10:00 - 10:15 Welcome Address

10:15 - 10:45 **Multi-Cloud: Expectations and Current Approaches.** Dana Petcu

10:45 - 11:15 **A vision for better Cloud applications.** Keith Jeffery, Geir Horn and Lutz Schubert

11:15 - 11:40 Coffee Break

Session 2: Development of Multi-Cloud Applications

11:40 - 12:10 **Lifecycle Management of Service-based Applications on Multi-Clouds: A Research Roadmap**. George Baryannis, Panagiotis Garefalakis, Kyriakos Kritikos, Kostas Magoutis, Antonis Papaioannou, Dimitris Plexousakis and Chrysostomos Zeginis

12:10 - 12:40 **SPACE4CLOUD: A tool for System PerformAnce and Cost Evaluation of CLOUD systems**. Davide Franceschelli, Danilo Ardagna, Michele Ciavotta and Elisabetta Di Nitto

12:40 - 14:00 Lunch

Session 3: Monitoring and Execution Support

14:00 - 14:30 **Towards a Monitoring Feedback Loop for Cloud Applications.** Piotr Bar, Rudy Benfredj, Jonathon Marks, Deyan Ulevinov, Bartosz Wozniak, Giuliano Casale and William J. Knottenbelt

14:30 - 15:00 **Automatic Virtual Machine Clustering based on Bhattacharyya Distance for Multi-Cloud Systems.** Claudia Canali and Riccardo Lancellotti

15:00 - 15:30 **Managing Elasticity Across Multiple Cloud Providers.** Fawaz Paraiso, Philippe Merle and Lionel Seinturier

15:30 - 16:00 **A Broker-based Framework for Multi-Cloud Workflows.** Foued Jrad, Jie Tao and Achim Streit

16:00 - 16:30 Coffee Break

Session 4: Cloud Migration and Panel Discussion

16:30 - 17:00 **Moving an application to the cloud - an evolutionary approach.** Alexander Gunka, Stepan Seycek and Harald Kuehn

17:00 - 17:20 **Towards Multi-Cloud Configurations Using Feature Models and Ontologies (short).** Clément Quinton, Nicolas Haderer, Romain Rouvoy and Laurence Duchien

17:20 - 18:30 Panel discussion and conclusion

Welcome and Keynote

9:00 - 10:00 Welcome Address

Keynote: Automated Modeling of Complex Data Center Applications. Prashant Shenoy (University of Massachusetts)

Session 1: Research Track Best Paper Candidates

Chair: Jose Nelson Amaral (University of Alberta)

10:00 - 10:25 **Towards Energy-Proportional Computing for Enterprise-Class Server Workloads.** Balaji Subramaniam and Wu-Chun Feng

10:25 - 10:50 **Automated Root Cause Isolation of Performance Regressions during Software Development.** Christoph Heger, Jens Happe and Roozbeh Farahbod

10:50 - 11:15 **Multiple Class G-Networks with Restart.** Jean-Michel Fourneau, Katinka Wolter, Philipp Reinecke and Tilman Krauss

11:15 - 11:40 Coffee Break

Session 2: Performance Modeling and Evaluation

Chair: Alexandru Iosup (TU Delft)

11:40 - 12:05 **Mean-Field Analysis of Data Flows in Wireless Sensor Networks.** Marcel C. Guenther and Jeremy T. Bradley

12:05 - 12:25 **When Spatial and Temporal Locality Collide: The Case of the Missing Cache Hits.** Mattias De Wael, David Ungar and Tom Van Cutsem

12:25 - 12:40 **On Load Balancing: A Mix-aware Algorithm for Heterogeneous Systems.** Sebastiano Spicuglia, Mathias Bjoerkqvist, Lydia Y. Chen, Giuseppe Serazzi, Walter Binder and Evgenia Smirni

12:40 - 14:00 Lunch

Session 3: Software Performance Modeling

Chair: Alberto Avritzer (Siemens)

14:00 - 14:25 **Decision Support via Automated Metric Comparison for the Palladio-based Performance Blame Analysis.** Frank Brüseke, Gregor Engels and Steffen Becker

14:25 - 14:50 **Propagation of Incremental Changes to Performance Model due to SOA Design Pattern Application.** Nariman Mani, Dorina Petriu and Murray Woodside

14:50 - 15:15 **Rapid Performance Modeling by Transforming Use Case Maps to Palladio Component Models.** Christian Vogel, Heiko Koziolek, Thomas Goldschmidt and Erik Burger

15:15 - 15:40 **Non-Markovian Analysis for Model-Driven Engineering of Real-Time Software.** Laura Carnevali, Marco Paolieri, Alessandro Santoni and Enrico Vicario

15:40 - 16:00 **Method for Scalability Testing of Microsoft Lync: Towards Optimal Provisioning.** Knut Helge Rygg, Gunnar Brataas, Geir Millstein and Terje Molle

16:00 - 16:35 Coffee Break & Posters & Demos

Session 4: Performance Analysis and Benchmarking I

Chair: Murray Woodside (Carleton University)

16:35 - 17:00 **DataMill: Rigorous Empirical Performance Analysis Made Easy.** Augusto Born de Oliveira, Jean-Christophe Petkovich, Thomas Reidemeister and Sebastian Fischmeister

17:00 - 17:25 **Workload Resampling for Performance Evaluation of Parallel Job Schedulers.** Netanel Zakay and Dror Feitelson

17:25 - 17:45 **Improving the Scalability of a Multi-Core Web Server.** Raoufehsadat Hashemian Harandi, Diwakar Krishnamurthy and Martin Arlitt

17:45 - 18:05 **Modeling Performance of a Parallel Streaming Engine: Bridging Theory and Costs.** Ivan Bedini, Sherif Sakr, Bart Theeten, Alessandra Sala and Peter Cogan

Keynote

8:30 - 9:30 **Keynote: Supporting Operations Personnel Through Performance Engineering.** Len Bass (NICTA)

Session 5: Performance Analysis and Benchmarking II

Chair: Dror Feitelson (Hebrew University)

9:30 - 9:55 **Self-Adaptive Workload Classification and Forecasting for Proactive Resource Provisioning.** Nikolas Roman Herbst, Nikolaus Huber, Samuel Kounev and Erich Amrehn

9:55 - 10:20 **COSBench: Cloud Object Storage Benchmark.** Qing Zheng, Haopeng Chen, Yaguang Wang, Jian Zhang and Jiangang Duan

10:20 - 10:35 **Parallelism Profiling and Wall-time Prediction for Multi-threaded Applications.** Akira Yokokawa, Achille Peternier, Walter Binder and Lydia Chen

10:35 - 11:00 Coffee Break

Session 6: Performance Modeling and Prediction

Chair: Enrico Vicario (University of Florence)

11:00 - 11:25 **Stream-Based Event Predication Using Bayesian and Bloom Filters.** Miao Wang, Viliam Holub, John Murphy and Patrick O'Sullivan

11:25 - 11:50 **On-Line Fair Allocations Based on Bottlenecks and Global Priorities.** Yoel Zeldes and Dror Feitelson

11:50 - 12:15 **Survivability Models for the Assessment of Smart Grid Distribution Automation Network Designs.** Alberto Avritzer, Sindhu Suresh, Daniel Sadoc Menasché, Rosa Leao, Edmundo DeSouza E Silva, Morganna Diniz, Anne Koziolek, Kishor Trivedi and Lucia Happe

12:15 - 12:40 **Benchmarking Approach for Designing a MapReduce Performance Model.** Zhuoyao Zhang, Ludmila Cherkasova and Boon Thau Loo

12:40 - 14:00 Lunch

Session 7: Performance in Cloud, Virtualized and Multi-Core Systems

Chair: Lucy Cherkasova (Hewlett-Packard)

14:00 - 14:20 **Invited talk: SPECjbb2013 and its ground breaking response time approach for emerging environments.** Anil Kumar and David Keenan

14:20 - 14:45 **Towards Building Performance Models for Data-intensive Workloads in Public Clouds.** Rizwan Mian, Patrick Martin, Farhana Zulkernine and Jose Luis Vazquez-Poletti

14:45 - 15:10 **vPerfGuard: an Automated Model-Driven Framework for Application Performance Diagnosis in Consolidated Cloud Environments.** Pengcheng Xiong, Xiaoyun Zhu, Rean Griffith and Calton Pu

15:10 - 15:35 **Predictive Performance Modeling of Virtualized Storage Systems Using Optimized Statistical Regression Techniques.** Qais Noorshams, Dominik Bruhn, Samuel Kounev and Ralf Reussner

15:35 - 16:00 **Experimental Analysis of Task-based Energy Consumption in Cloud Computing Systems.** Feifei Chen, John Grundy, Yun Yang, Jean-Guy Schneider and Qiang He

16:00 - 16:35 Coffee Break & Posters & Demos

poster **Time-Average Limits in Deterministic and Stochastic Petri Nets.** Tomáš Brázdil, Luboš Korenciak, Jan Krčál, Jan Křetínský and Vojtěch Řehák

poster **Model-Based Performance Testing in the Cloud Using the MBPeT Tool.** Fredrik Abbors, Tanwir Ahmad, Dragos Truscan and Ivan Porres

poster **SPECsip Infrastructure and Application Benchmarks.** Yao-Min Chen, Victoria Roxas and Azeem Jiva

poster **MockTell: Exploring challenges of user emulation in Interactive Voice Response Testing.** Siddhartha Asthana, Pushpendra Singh, Amarjeet Singh

demo **Introduction to Dynamic Program Analysis with DiSL.** Lukáš Marek, Yudi Zheng, Danilo Ansaloni, Lubomír Bulej, Aibek Sarimbekov, Walter Binder, Zhenwei Qi

demo **FINCoS: Benchmark Tools for Event Processing Systems.** Marcelo R. N. Mendes, Pedro Bizarro, Paulo Marques

Session 8: Vision & Work-In-Progress Papers

Chair: Kai Sachs (SAP)

16:35 - 16:45 **Towards a Standard Event Processing Benchmark.** Marcelo Mendes, Pedro Bizarro and Paulo Marques

16:45 - 16:55 **Towards a Methodology Driven by Dependencies of Quality Attributes for QoS-based Analysis.** Steffen Becker, Lucia Happe, Raffaela Mirandola and Catia Trubiani

16:55 - 17:05 **Assessing Computer Performance with SToCS.** Leonardo Piga, Gabriel Ferreira, Rafael Auler, Bruno Rosa, Sandro Rigo and Edson Borin

17:05 - 17:15 **Towards a Workload Model for Online Social Applications.** Alexandru-Corneliu Olteanu, Alexandru Iosup and Nicolae Tapus

17:15 - 17:25 **A Robust Optimization for Proactive Energy Management in Virtualized Data Centers.** Ibrahim Takouna, Wesam Dawoud, Kai Sachs and Christoph Meinel

17:25 - 17:35 **A Meta-Model for Performance Modeling of Dynamic Virtualized Network Infrastructures.** Piotr Rygielski, Steffen Zschaler and Samuel Kounev

17:35 - 17:45 **Performance Modelling of Database Contention using Queueing Petri Nets.** David Coulden, Rasha Osman and William Knottenbelt

17:45 - 17:55 **CloudScale: Scalability Management for Cloud Systems.** Gunnar Brataas, Erlend Stav, Sebastian Lehrig, Steffen Becker, Goran Kopcak and Darko Huljenic

17:55 - 18:05 **A Generic Approach for Architecture-Level Performance Modeling and Prediction of Virtualized Storage Systems.** Qais Noorshams, Samuel Kounev and Ralf Reussner

18:05 - 18:15 **Adaptive Deployment in Ad-Hoc Systems Using Emergent Component Ensembles.** Lubomír Bulej, Tomáš Bureš, Vojtěch Horký and Jaroslav Keznikl

Keynote

8:30 - 9:30 **Keynote: Data Centric Computing for Internet Scale Enterprises.** Yuqing Gao, IBM T. J. Watson Research Center, USA

Session 9: Industry Track Best Paper Candidates

Chair: Seetharami Seelam (IBM T. J. Watson Research Center)

9:30 - 9:50 **Further Implementation Aspects of the Server Efficiency Rating Tool (SERT).** Klaus-Dieter Lange, Jeremy A. Arnold, Hansfried. Block, Nathan Totura, John Beckett and Mike G. Tricker

9:50 - 10:10 **Variations of the Star Schema Benchmark to Test Data Skew in Database Management Systems.** Tilmann Rabl, Meikel Poess, Hans-Arno Jacobsen, Pat O'Neil and Betty O'Neil

10:10 - 10:35 Coffee Break

Session 10: Performance Analysis and Benchmarking III

Chair: Meikel Poess (Oracle)

10:35 - 11:00 **Deriving Coloured Generalised Stochastic Petri Net Performance Models from High-Precision Location Tracking Data.** Nikolas Anastasiou and William Knottenbelt

11:00 - 11:25 **Resource Availability Based Performance Benchmarking of Virtual Machine Migrations.** Senthil Nathan, Purushottam Kulkarni and Umesh Bellur

11:25 - 11:45 **Overcoming Memory Limitations in High-Throughput Event-Based Applications.** Marcelo Mendes, Pedro Bizarro and Paulo Marques

11:45 - 12:05 **Systematic Performance Evaluation based on Tailored Benchmark Applications.** Christian Weiss, Dennis Westermann, Christoph Heger and Martin Moser

Closing

12:05 - 12:15 Closing Address

All About SPEC

The Standard Performance Evaluation Corporation (SPEC) was formed in 1988 to establish industry standards for measuring computer performance. Since then, SPEC has become the largest and most influential benchmark consortium in the world.

SPEC has developed more than 30 industry-standard benchmarks for system performance evaluation in a variety of application areas and provided thousands of benchmark licenses to companies, resource centers, and educational institutions globally.

Organizations using these benchmarks have published more than 20,000 peer-reviewed performance reports.

How to participate in SPEC

SPEC's membership comprises more than 130 leading computer hardware and software vendors, educational institutions, research organizations, and government agencies worldwide.

Membership allows for free access to benchmark suites, full participation in developing new benchmarks and tools, and publication of benchmark results on SPEC's web site.

For membership information, contact SPEC at info@spec.org.

SPEC comprises four groups:

Graphics and Workstation Performance Group (GWPG)
Develops consistent, repeatable graphics and workstation performance benchmarks in a way that reflects user experiences with popular applications.

High Performance Group (HPG)
Develops benchmarks to represent high-performance computing applications for standardized, cross-platform performance evaluation.

Open Systems Group (OSG)
Develops component- and systems-level benchmarks for workstations and servers running open operating system environments.

Research Group (RG)
Promotes research on benchmarking methodologies and tools used to deliver benchmark suites and performance analysis frameworks for established and newly emerging technologies.

Benchmarks

SPEC offers a range of computer benchmarks and performance evaluation tools.

Newest Releases:

- SPECjbb2013
- Server Efficiency Rating Tool (SERT)
- SPECapc for PTC Creo 2.0
- SPEComp2012
- SPECapc for Maya 2012

In Development:

- PTDaemon -- An update of SPEC's power and temperature measurement harness
- Service Oriented Architecture (SOA) benchmark suite -- measuring performance for typical middleware, database and hardware deployments.
- SPECsip_Application2013 benchmark suite -- a system-level benchmark for application servers, HTTP and SIP load generators.
- A new benchmark measuring comprehensive workstation performance based on popular applications.
- A benchmark for measuring compute-intensive performance of handheld devices.
- Updates of many existing SPEC benchmarks and performance evaluation tools.

Go to www.spec.org for a complete list of SPEC's benchmark products.

SPEC welcomes interested conference attendees. Please mail info@spec.org or contact Mrs. Dianne Rice on site during the conference for more details.

Tuesday, April 23

8:30 - 19:00 SPEC OSG CPU
8:30 - 19:00 SPEC OSG jEnterprise
8:00 - 17:00 SPEC OSG Power

Wednesday, April 24

8:30 - 19:00 SPEC OSG CPU
8:30 - 19:00 SPEC OSG jEnterprise
8:00 - 17:00 SPEC OSG Power
14:00 - 19:00 SPEC Research Group
19:30 Meeting Point for SPEC Dinner at Hotel Lobby

Thursday, April 25

8:30 - 19:00 SPEC OSG CPU
8:00 - 10:00 SPEC OSG Steering Committee Meeting
8:00 - 17:00 SPEC OSG Power
9:00 - 12:00 SPEC Research Group
17:00 - 19:00 SPEC Board Meeting

Friday, April 26

8:00 - 11:30 SPEC OSG Power

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