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Distributed Applications and Interoperable Systems

13th IFIP WG 6.1 International Conference, DAIS 2013
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on Distributed Computing Techniques, DisCoTec 2013
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Proceedings



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Foreword

In 2013 the 8th International Federated Conference on Distributed Computing Techniques (DisCoTec) took place in Florence, Italy, during June 3–6. It was hosted and organized by Università di Firenze. The DisCoTec series of federated conferences, one of the major events sponsored by the International Federation for Information processing (IFIP), included three conferences:

- The 15th International Conference on Coordination Models and Languages (Coordination)
- The 13th IFIP International Conference on Distributed Applications and Interoperable Systems (DAIS)
- The 2013 IFIP Joint International Conference on Formal Techniques for Distributed Systems (33rd FORTE/15th FMOODS)

Together, these conferences cover the complete spectrum of distributed computing subjects ranging from theoretical foundations to formal specification techniques to systems research issues.

Each of the first three days of the federated event began with a plenary speaker nominated by one of the conferences. The three invited speakers were: Tevfik Bultan, Department of Computer Science at the University of California, Santa Barbara, UCSB; Gian Pietro Picco, Department of Information Engineering and Computer Science at the University of Trento, Italy; and Roberto Baldoni, Department of Computer, Control and Management Engineering “Antonio Ruberti”, Università degli Studi di Roma “La Sapienza”, Italy. In addition, on the second day, there was a joint technical session consisting of one paper from each of the conferences. There were also three satellite events:

1. The 4th International Workshop on Interactions Between Computer Science and Biology (CS2BIO) with keynote talks by Giuseppe Longo (ENS Paris, France) and Mario Rasetti (ISI Foundation, Italy)
2. The 6th Workshop on Interaction and Concurrency Experience (ICE) with keynote lectures by Davide Sangiorgi (Università di Bologna, Italy) and Damien Pous (ENS Lyon, France)
3. The 9th International Workshop on Automated Specification and Verification of Web Systems (WWV) with keynote talks by Gerhard Friedrich (Universität Klagenfurt, Austria) and François Taïani (Université de Rennes 1, France)

I believe that this program offered each participant an interesting and stimulating event. I would like to thank the Program Committee Chairs of each conference and workshop for their effort. Moreover, organizing DisCoTec 2013 was only possible thanks to the dedicated work of the Publicity Chair Francesco Tiezzi (IMT Lucca, Italy), the Workshop Chair Rosario Pugliese (Università

di Firenze, Italy), and members of the Organizing Committee from Università di Firenze: Luca Cesari, Andrea Margheri, Massimiliano Masi, Simona Rinaldi and Betti Venneri. To conclude I want to thank the International Federation for Information Processing (IFIP) and Università di Firenze for their sponsorship.

June 2013

Michele Loreti

Preface

This volume contains the proceedings of DAIS 2013, the 13th IFIP International Conference on Distributed Applications and Interoperable Systems, sponsored by IFIP (International Federation for Information Processing) and organized by the IFIP Working Group 6.1.

DAIS was held during June 3–5, 2013 in Florence, Italy, as part of the DisCoTec (Distributed Computing Techniques) federated conference, together with the International Conference on Formal Techniques for Distributed Systems (FMOODS & FORTE) and the International Conference on Coordination Models and Languages (COORDINATION). There were 42 submissions for DAIS. Each submission was reviewed by at least 3, and on average 3.9, Program Committee members. The committee decided to accept 12 full papers and six short papers, giving an acceptance rate of 28% for full research papers.

The conference program presented state-of-the-art research results and case studies in the area of distributed applications and interoperable systems. The main themes of this year's conference were cloud computing, replicated storage, and peer-to-peer computing.

In the area of cloud computing, there are papers on security, adaptive replicated services, network forensics for the cloud, autonomously adapting applications, a benchmark-as-a-service, and building an ambient cloud for mobile ad-hoc networks. A significant number of the papers cover replicated storage, including providing SQL support for NoSQL databases, strengthening consistency for the Cassandra key-value store, using application-level knowledge to improve replication consistency models, improving transaction processing throughput for optimistic concurrency control through adaptive scheduling, and a study of the cost of consistency models in distributed filesystems. Two papers are on peer-to-peer computing, including algorithms for generating scale-free overlay topologies, and a model for a peer-to-peer-based virtual microscope. We also had papers on deploying experiments on smartphones, bandwidth prediction, asynchronous protocol gateways, and decentralized workflow scheduling.

Finally, we would like to take this opportunity to thank the many people whose work made this conference possible. We wish to express our deepest gratitude to the authors of submitted papers, to all PC members for their active participation in the paper review process, and to all external reviewers for their

help in evaluating submissions. We would like to thank the Steering Committee of DAIS, and in particular the Chair Rui Oliviera, for their advice and help. We would also like to thank Roberto Baldoni, our invited keynote speaker. Further thanks go to the University of Florence for hosting the event in Florence, to the past DAIS Chairs Karl Göschka and Seif Haridi for their useful advice and documentation, and to Michele Loreti for acting as a General Chair of the joint event.

April 2013

Jim Dowling
François Taïani

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