



Thirteenth International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2011)

October 10-12, 2011, Grenoble, France



Sunday, October 9, 2011

17:30 – 20:00 Welcome, pre-registration at Aconit
(http://www.aconit.org/index_en.php)

Monday, October 10 2011

8:00 – 8:45 Registration

8:45 – 9:00 **Opening: Vincent Villain**

9:00 – 10:00 **Invited Talk: Toshimitsu Masuzawa**

Silence is Golden: Self-stabilizing Protocols Communication-efficient after Convergence.

10:00 – 10:30 Pause

- 10:30 – 12:00 **Session 1: Self-Stabilization #1**
 Session Chair: *Fukuhito Ooshita*
- Pragmatic Self-Stabilization of Atomic Memory in Message-Passing Systems.
Noga Alon, Shlomi Dolev, Swan Dubois, Hagit Attiya, Maria Gradinariu Potop-Butucaru, and Sébastien Tixeuil
- Active Stabilization.
Borzoo Bonakdarpour and Sandeep Kulkarni
- Self-Stabilizing Labeling and Ranking in Ordered Trees.
Stéphane Devismes, Ajoy K. Datta, Lawrence Larmore, and Yvan Rivierre
- 12:00 – 14:00 **Lunch**
- 14:00 – 15:30 **Session 2: Fault-Tolerance and Dependable Systems #1**
 Session Chair: *Shlomi Dolev*
- Conflict-free Replicated Data Types.
Marc Shapiro, Nuno Preguiça, Carlos Baquero, and Marek Zawirski
- An Algorithm for implementing BFT Registers in Distributed Systems with Bounded Churn.
Roberto Baldoni, Silvia Bonomi, and Amir Soltani Nezhad
- The K-Observer Problem in Computer Networks.
H B Acharya, Taehwan Choi, Rida Bazzi, and Mohamed Gouda
- 15:30 – 16:00 **Pause**
- 16:00 – 17:00 **Session 3: Self-Organizing and Autonomic Networks**
 Session Chair: *Othon Michail*
- The South Zone: Distributed Algorithms for Alliances.
M. C. Dourado, L.D. Penso, D. Rautenbach, and J.L. Szwarcfiter
- Price Stabilization in Networks - What Is an Appropriate Model?
Jun Kiniwa and Kensaku Kikuta
- 17:00 – 17:10 **Break**
- 17:10 – 18:00 **Brief Announcements #1: Autonomic and Peer-to-peer Networks**
 Session Chair: *Nicola Santoro*
- Towards Interoperability Standards and Services for Autonomic Systems.
Richard Anthony, Mariusz Pelc, and Haffiz Shuaib
- Distributed Self-Organizing Event Space Partitioning for Content-Based Publish/Subscribe Systems.
Roberto Beraldi, Adriano Cerocchi, Fabio Papale, and Leonardo Querzoni
- A Conjecture on Traceability, and a New Class of Traceable Networks.
H B Acharya, Anil Kumar Katti, and Mohamed Gouda
- A Note On Replication of Documents.
Jacek Cichon, Rafal Kapelko, and Karol Marchwicki
- A Stable and Robust Membership Protocol.
Ajoy K. Datta, Anne-Marie Kermarrec, Lawrence L. Larmore, and Erwan Le Merrer
- 18:00 – 18:30 **Business Meeting**

Tuesday, October 11 2011

- 8:30 – 9:00 **Registration**
- 9:00 – 10:00 **Invited Talk: Nicola Santoro**
Computing in Time-Varying Networks.
- 10:00 – 10:30 **Pause**
- 10:30 – 12:30 **Session 4: Ad-Hoc, Sensor, and Dynamic Networks #1**
Session Chair: *Koichi Wada*

Using Zero Knowledge to Share a Little Knowledge: Bootstrapping Trust in Device Networks.
Ingy Ramzy and Anish Arora

POLISH: Proactive co-Operative Link Self-Healing for Wireless Sensor Networks.
Tatsuro Iida, Atsuko Miyaji, and Kazumasa Omote

Analysis of DSR protocol in Event-B.
Neeraj Singh and Dominique Mery

Dynamic Regular Registers in Systems with Churn.
Andreas Klappenecker, Hyunyoung Lee, and Jennifer Welch
- 12:30 – 14:00 **Lunch**
- 14:00 – 15:30 **Session 5: Security, Safety and Verification**
Session Chair: *Sandeep Kulkarni*

TRUMANBOX: Improving Dynamic Malware Analysis by Emulating the Internet.
Christian Gorecki, Felix Freiling, Marc Kuehrer, and Thorsten Holz

Rendezvous Tunnel for Anonymous Publishing: Clean Slate and Tor Based Designs.
Ofer Hermoni, Niv Gilboa, Eyal Felstaine, Yuval Elovici, and Shlomi Dolev

Formal Verification of Consensus Algorithms Tolerating Malicious Faults.
Bernadette Charron-Bost, Henri Debrat, and Stephan Merz
- 15:30 – 16:00 **Pause**
- 16:00 – 17:00 **Session 6: Self-Stabilization #2**
Session Chair: *Joffroy Beauquier*

Space-Efficient Fault-Containment in Dynamic Networks.
Sven Köhler and Volker Turau

The OCRC Fuel Cell Lab Safety System: A Self-Stabilizing Safety-Critical System.
William Leal, Micah McCreery, and Daniel Codo De Faria
- 17:00 – 17:10 **Break**

- 17:10 – 18:00 **Brief Announcements #2: Self-Stabilization, Fault-tolerance, and Dynamic Networks**
 Session Chair: *Colette Johnen*
- A Stabilizing Algorithm for Finding Two Edge-Disjoint Paths in Arbitrary Graphs.
Fawaz Al-Azemi and Mehmet Karaata
- Sorting on Skip Chains.
Stéphane Devismes, Ajoy K. Datta, and Lawrence Larmore
- A Concurrent Partial Snapshot Algorithm for Large-scale, and Dynamic Distributed Systems.
Yonghwan Kim, Tadashi Araragi, Junya Nakamura, and Toshimitsu Masuzawa
- Fault-Tolerant Object Location in Large Compute Clusters.
Bjorn Saballus, Stephan-Alexander Posselt, and Thomas Fuhrmann
- Faster Gossiping in Bidirectional Radio Networks with Large Labels.
Shailesh Vaya
- 19:00 – **Banquet**

Wednesday, October 12 2011

- 8:30 – 9:30 **Invited Speaker: Marc Lacoste**
 Cloud Dependability: How Close Are We? -- Challenges and Research Issues Towards Dependable Clouds.
Thierry Coupaye and Marc Lacoste, Orange Labs
- 9:30 – 9:50 **Pause**
- 9:50 – 11:20 **Session 7: Best Papers**
 Session Chair: *Vincent Villain*
- Best Paper Award**
 Building Self-Stabilizing Overlay Networks with the Transitive Closure Framework.
Andrew Berns, Sukumar Ghosh, and Sriram Pemmaraju
- Best Student Paper Awards (*ex aequo*)**
 The Weakest Failure Detector to Implement a Register in Asynchronous Systems with Hybrid Communication.
Damien Imbs and Michel Raynal
- Corona: A Stabilizing Deterministic Message-Passing Skip List.
Rizal Nor, Mikhail Nesterenko, and Christian Scheideler
- 11:20 – 11:30 **Break**
- 11:30 – 12:30 **Session 8: Overlay and Peer-to-Peer Networks**
 Session Chair: *Christian Scheideler*
- Social Market: Combining Explicit and Implicit Social Networks.
Davide Frey, Arnaud Jegou, and Anne-Marie Kermarrec
- Self-Stabilizing De Bruijn Networks.
Phillip Stevens, Andrea Richa, and Christian Scheideler
- 12:30 – 14:00 **Lunch**

- 14:00 – 15:00 **Session 9: Fault-Tolerance and Dependable Systems #2**
 Session Chair: *Maria Gradinariu Potop-Butucaru*
 Fault-tolerant Algorithms for Tick-Generation in Asynchronous Logic: Robust Pulse Generation.
Danny Dolev, Matthias Fuegger, Christoph Lenzen, and Ulrich Schmid
 A Non-topological Impossibility Proof of k-set Agreement.
Armando Castaneda and Hagit Attiya
- 15:00 – 15:10 **Break**
- 15:10 – 16:10 **Session 10: Fault-Tolerance and Dependable Systems #3**
 Session Chair: *Toshimitsu Masuzawa*
 Relations Linking Failure Detectors Associated with k-set Agreement in Message-Passing Systems.
Achour Mostefaoui, Michel Raynal, and Julien Stainer
 Snake: Control Flow Distributed Software Transactional Memory.
Mohamed Ibrahim and Binoy Ravindran
- 16:10 – 16:40 **Pause**
- 16:40 – 18:10 **Session 11: Ad-Hoc, Sensor, and Dynamic Networks #2**
 Session Chair: *Yoshiaki Katayama*
 The Computational Power of Simple Protocols for Self-Awareness on Graphs.
Ioannis Chatzigiannakis, Othon Michail, Stavros Nikolaou, and Paul Spirakis
 Computing Time Complexity of Population Protocols with Cover Times - the ZebraNet Example.
Joffroy Beauquier, Peva Blanchard, Janna Burman and Sylvie Delaet
 Robot Networks with Homonyms: The Case of Patterns Formation.
Zohir Bouzid and Anissa Lamani
- 18:10 – 18:15 **Closing**

Cloud Dependability: How Close Are We? -- Challenges and Research Issues Towards Dependable Clouds.

Thierry Coupaye and Marc Lacoste, Orange Labs

Invited Talk: Wednesday, October 12, 2011, 8 :30 AM

Abstract : In the past few years, cloud computing has emerged as an undisputed trend for large-scale distributed systems. This paradigm enables on-demand access over a network to large pools of shared virtualized resources (e.g., CPU, storage, network, platforms, or services). Foreseen benefits are huge, such as improved agility and scalability, which has led to a very rapid transition from model to real-life industrial deployments. However, some major technological roadblocks could still prevent adoption, opening many avenues for research. Dependability is definitely on the top of the list.

Starting from examples of a few recent security and availability threats on well-known cloud infrastructures, the talk will discuss the distinguishing features of cloud computing (e.g., virtualization, multi-tenancy), and induced key challenges in security and fault-tolerance (e.g., end-to-end monitoring and troubleshooting, multiple responsibilities for infrastructure management). Taking an autonomic perspective, the talk will then focus on two broad areas of research tackling some of those challenges to improve dependability: self-healing and self-protection in cloud infrastructures, both at VM and hypervisor levels. The latter enables to set up elastic security mechanisms, such as adaptable quarantine zone enforcement. After highlighting recent results and remaining open issues, the talk will finally evoke how self-stabilization could contribute to building "better" clouds, more reliable and trustworthy.