The 8th IEEE International Symposium on Network Computing and Applications

IEEE NCA09

9-11 July 2009

Hotel Marlowe
Cambridge, MA USA

Sponsored by

IEEE
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# Technical Program

Paper presenters are indicated in bold.

## Thursday, 9 July 2009

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<td>Serrano A/B</td>
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<td><strong>An Experimental Study of Diversity with Off-The-Shelf AntiVirus Engines</strong></td>
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<td>Ilir Gashi, Vladimir Stankovic (City University London, London UK), Corrado Leita (Symantec, Sophia Antipolis, France) and Olivier Thonnard (Royal Military Academy, EURECOM, Brussels, Belgium)</td>
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<td>Serrano A/B</td>
<td>Peer-to-Peer Networks</td>
<td><strong>QuoCast: A Resource-Aware Algorithm for Reliable Peer-to-Peer Multicast</strong></td>
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<td>Mouna Allani, Benoît Garbinato (University of Lausanne, Switzerland), Amirhossein Malekpour and Fernando Pedone (University of Lugano, Switzerland)</td>
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<td><strong>Seed Scheduling for Peer-to-Peer Networks</strong></td>
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<td>Flavio Esposito, Ibrahim Matta (Boston University, MA, USA), Pietro Michiardi (Eurecom Institute, Sophia Antipolis, France) Nobuyuki Mitsutake (Boston University, MA, USA) and Damiano Carra (University of Verona, Verona, Italy)</td>
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<td>11:00 - 12:00</td>
<td>Serrano A/B</td>
<td>Overlay Networks</td>
<td><strong>Streamline: An Architecture for Overlay Multicast</strong></td>
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<td>Amirhossein Malekpour, Fernando Pedone (University of Lugano, Switzerland), Mouna Allani and Benoît Garbinato (University of Lausanne, Switzerland)</td>
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<td><strong>Towards Improved Overlay Simulation Using Realistic Topologies</strong></td>
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<td>Gert Pfeifer, Ryan Spring and Christof Fetzer (Dresden University of Technology, Germany)</td>
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<td>Serrano</td>
<td>Keynote Session</td>
<td><strong>The European Research Council – a new element in EU research policy</strong></td>
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<td>Prof. Michal Kleiber, (European Research Council, Member of the Scientific Council, EU, Brussels, Belgium)</td>
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</table>
**Processor Sharing, Job Allocation and Resource Selection**

*Analysis of Round-Robin Implementations of Processor Sharing, Including Overhead*

**Steve Thompson**, Lester Lipsky (University of Connecticut, CT, USA), Sarah Tasneem (Eastern Connecticut State University, CT, USA) and Feng Zhang (University of Connecticut, CT, USA)

*Comparison of Price-based Static and Dynamic Job Allocation Schemes for Grid Computing Systems*

**Satish Penmatsa** (Southern Arkansas University AR, USA) and Anthony Chronopoulos (University of Texas at San Antonio, TX, USA)

*A Rule based Co-operative Approach for Cell Selection in High Speed Cellular Networks*

**Joseph Gomes** (Bowie State University, MD, USA)

**Session Chair** TBA

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**Distributed Dependable Storage**

*Sharing Private Information Across Distributed Databases*

**Michael Siegenthaler** and Ken Birman (Cornell University, NY, USA)

*Energy-Aware Prefetching for Parallel Disk Systems: Algorithms, Models, and Evaluation*

**Adam Manzanares**, Xiaojun Ruan, Shu Yin (Auburn University, AL, USA), Mais Nijim (University of Southern Mississippi, MO, USA), WeiLuo (China Ship Development and Design Center, Wuhan, Hubei, China) and Xiao Qin (Auburn University, AL, USA)

**Session Chair** TBA

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14:00 - 15:30
Serrano A/B

15:30 - 16:30
Serrano A/B

16:30 – 16:45
Serrano Foyer

**Break**

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**Biologically Inspired and Cognitive Approaches to Mission Survivability (BIOCOMS) Workshop**

*From Auto-adaptive to Survivable and Self-Regenerative Systems - Successes, Challenges, and Future*

**Michael Atighetchi** and Partha Pal (BBN Technologies, Cambridge, MA, USA)

*Generic Danger Detection for Mission Continuity*

Richard Ford, Attila Ondi, **William Allen**, Katherine Hoffman (Florida Institute of Technology, FL, USA) and Marco Carvalho (Institute for Machine and Human Cognition, FL, USA)

*Survivability Through Run-Time Software Evolution*

**Sharon Simmons** and Dennis Edwards (University of West Florida, FL, USA)

**Session Chair** TBA

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**Trustworthy Network Computing (TNC) Workshop**

*Automating Intrusion Response via Virtualization for Realizing Uninterruptible Web Services*

**Yih Huang** and Anup K. Ghosh (George Mason University, VA, USA)

*Investigating the use of Topology Adaptation for Robust Multi-Path Transport: A Preliminary Study*

**Marco Arguedas**, Carlos Perez, Marco Carvalho, Adrian Granados (Institute for Human and Machine Cognition, FL, USA), Kelli Hoback and Wayne Kraus (Rockwell Collins, IA, USA)

*Wireless Transmission Energy Analysis for Interference-Aware and Confidentiality-Enhanced Multipath Routing*

**Chung-wei Lee** (University of Illinois at Springfield, IL, USA)

**Session Chair** TBA
### Adaptive Cloud & Grid Computing (AGC) Workshop and Short Papers (Cloud Computing)

**GliteVM: How Science and Business may benefit from Virtualization**  
Giuseppe Minutilo and Antonio Puliafito (University of Messina, Italy)

**Customizing Network Functions for High Performance Cloud Computing**  
Takahiro Miyamoto, Michiaki Hayashi and Hideaki Tanaka (KDDI R&D Laboratories Inc., Optical Network Architecture Laboratory, Japan)

**Volunteer Computing and Desktop Cloud: the Cloud@Home Paradigm**  
Vincenzo D. Cunsolo, Salvatore Distefano, Antonio Puliafito and Marco Scarpa (University of Messina, Italy)

### 18:45 – 19:00  
**On your own**

### 19:00 – 20:00  
**Reception**

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**Friday, 10 July 2009**

#### 8:00 - 8:30  
**Serrano Foyer**  
**Continental Breakfast**

#### 8:30 - 10:30  
**Serrano A/B**  
**Network Security**

* A Collusion-Resistant Distributed Scalar Product Protocol With Application To Privacy-Preserving Computation of Trust  
Carlos Aguilera Melchor, Boussad Ait-Salem and Philippe Gaborit (University of Limoges, France)

* A Privacy Preserving Intrusion Tolerant Voting Architecture  
Soontaree Tanarakritavorn and Shivakant Mishra (University of Colorado, CO, USA)

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**Break**

#### 10:30 - 11:00  
**Serrano Foyer**

#### 11:00 - 12:30  
**Serrano A/B**  
**Sensor Networks and Mobile Ad-Hoc Networks (MANETs)**

* A Case for Meta-Triggers in Wireless Sensor Networks  
Goce Trajcevski, Nikolay Valtchanov, Oliviu Ghica and Peter Scheuermann (Northwestern University IL, USA)

* Digital Investigation of Wormhole Attacks in Wireless Sensor Networks  
Bayrem Triki, Slim Rekhis and Noureddine Boudriga (University of the 7th of November at Carthage, Tunisia)

* TinyPairing: Computing Tate Pairing on Sensor Nodes with Higher Speed and Less Memory  
Xiaokang Xiong, Duncan S. Wong and Xiaotie Deng (City University of Hong Kong, China)
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<td><em>Simulating Fixed Virtual Nodes for Adapting Wireline Protocols to MANET</em></td>
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<td><strong>Jiang Wu</strong>, Nancy Griffeth (City University of New York, NY, USA), Nancy Lynch, Calvin Newport (Massachusetts Institute of Technology, MA, USA) and Ralph Droms (Cisco Systems, USA)</td>
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<td><em>Sustainability and the Office of CyberInfrastructure</em></td>
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<td><strong>Jennifer M. Schoof</strong> (Office of CyberInfrastructure, National Science Foundation (NSF), USA, and CyberInformatics Group, Woods Hole Oceanographic Institute)</td>
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<td><strong>Virtualization and Quality of Service</strong></td>
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<td><em>Maintaining Network QoS Across NIC Device Driver Failures Using Virtualization</em></td>
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<td><strong>Michael Le</strong>, Andrew Gallagher, Yuval Tamir (University of California at Los Angeles, CA, USA) and Yoshio Turner (HP Laboratories, CA, USA)</td>
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<td><em>Improving Virtualized Windows Network Performance by Delegating Network Processing</em></td>
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<td><strong>Younggyun Koh</strong>, Calton Pu (Georgia Institute of Technology, GA, USA), Yasushi Shinjo, Hideki Eiraku, Go Saito and Daiyuu Nobori (University of Tsukuba, Tsukuba Ibaraki, Japan)</td>
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<td><em>Introducing Virtual Execution Environments for Application Lifecycle Management and SLA-Driven Resource Distribution within Service Providers</em></td>
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<td><strong>Iñigo Goiri</strong>, Ferran Julia, Jorge Ejarque, Marc de Palol, Rosa Badia, Jordi Guitart and Jordi Torres (Barcelona Supercomputing Center, Barcelona, Spain)</td>
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<td><em>Quality of Service Specifications: A Semantic Approach</em></td>
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<td><strong>Achilles Colombo Prudêncio</strong>, Roberto Willrich (Santa Catarina Federal University, Florianópolis, Brazil) <strong>Michel Diaz</strong> and <strong>Said Tazi</strong> (LAAS-CNRS and Toulouse University, Toulouse, France)</td>
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Saturday, 11 July 2009

8:00 - 8:20
Serrano Foyer

Continental Breakfast

8:20 - 10:20
Serrano A/B

Wireless and Mobile Ad-hoc Networks (MANETs)

Estimating the Impact of Mobility Models’ Parameters on Mobility Metrics in MANETs
Elmano Cavalcanti and Marco Spohn (Federal University of Campina Grande, Campina Grande, PB, Brazil)

Performance Evaluation of Concurrent Multipath Transfer using SCTP Multihoming in Multihop Wireless Networks
Ilknur Aydin and Chien-Chung Shen (University of Delaware, DE, USA)

Unequal Error Protection (UEP) for Wavelet-Based Wireless 3D Mesh Transmission
Fan Wu (Tuskegee University, AL, USA), Emmanuel Agu, Clifford Lindsay and Chung-han Chen

Introducing Probability in RFID Reader-to-Reader Anti-collision
Filippo Gandino, Renato Ferrero, Bartolomeo Montrucchio and Maurizio Rebaudengo (Politecnico di Torino, Torino, Italy)

10:20 - 10:40
Serrano Foyer

Break

10:40 - 12:00
Serrano A/B

Short Papers 1 – Security

Empirical Study of Tolerating Denial-of-Service Attacks with the Fosel Architecture
Hakem Beitollahi and Geert Deconinck (Katholieke Universiteit Leuven, Leuven, Belgium) Presented by Hassan Salmani (Connecticut University)

TTM Based Security Enhancement for Inter-domain Routing Protocol
Peidong Zhu, Xiangjiang Hu and Xiaqiang Wang (National University of Defense Technology, Hunan, China)

Attribute-based Prevention of Phishing Attacks
Michael Atighetchi and Partha Pal (BBN Technologies, Cambridge, USA)

FIRST: Forensic Internet Replay Sequencing Tool
Michael Kelly and Sean Geoghegan (University of Arkansas at Little Rock, AR USA)

12:00 - 13:00
Serrano C

Lunch

13:00 - 14:20
Serrano A/B

Short Papers 2 – Peer-to-peer and Data Transfer

Adaptive Network Coding for Heterogeneous Peer-to-peer Streaming Systems
Min Yang and Yuanyuan Yang (State University of New York, Stony Brook, NY, USA)

Small Coalitions: Lightweight Collaboration for Efficient P2P Downloads
Ghassan Karame (ETH Zürich, Zürich, Switzerland), Mario Cagalj (University of Split, Split, Croatia) and Srdjan Capkun (ETH Zürich, Zürich, Switzerland)
Presented by Kasper Bonne Rasmussen (ETH Zürich, Zürich, Switzerland)
A Distributed Algorithm for Web Content Replication
**Sharrukh Zaman** and Daniel Grosu (Wayne State University, MI, USA)

A Novel Congestion Control Algorithm for High Performance Bulk Data Transfer
**Yongmao Ren**, Haina Tang, Jun Li and Huailin Qian (Graduate University of Chinese Academy of Sciences, Beijing, China)

### Break

**Short Papers 3 – Wireless Networks**

*A Rapid Tag Identification Method with Two Slots in RFID Systems*
Yong Hwan Kim, Sung Soo Kim and **Kwang Seon Ahn** (Kyungpook National University Daegu, Korea)

*Serving Handing Over Stations within the Mobile IEEE 802.16 Mesh Mode Context*
**Neila Krichene** and Noureddine Boudriga (University of Carthage, Tunisia)

*Functional and Performance Analysis of CalRadio 1 platform*
Riccardo Manfrin, **Andrea Zanella** and Michele Zorzi (University of Padova, Italy)

*RL-based Queue Management for QoS Support in Multi-Channel Multi-Radio Mesh Networks*
**Yu Zhou**, Mira Yun, Timothy Kim (The George Washington University, Washington, DC, USA), Amrinder Arora (Bowie State University, Bowie, MD, USA) and Hyeong-Ah Choi (The George Washington University, Washington, DC, USA)

### Short Papers 4 – Architectures and Protocols

*A New Architecture for Optical Burst Switching Networks Based on Cooperative Control*
**Nuno Garcia** (Universidade Lusófona de Humanidades e Tecnologias, Lisboa, Portugal and University of Beira Interior, Covilhã, Portugal), Mário Freire, Przemyslaw Lenkiewicz (University of Beira Interior, Covilhã, Portugal) and Paulo Monteiro (Universidade de Aveiro, Aveiro, Portugal and Nokia Siemens Networks Portugal S.A., Amadora, Portugal)

*Optimizations of Large Receive Offload in Xen*
**Hitoshi Oi** and Fumio Nakajima (The University of Aizu, Aizu Wakamatsu, Japan)

*TTEthernet Dataflow Concept*
**Wilfried Steiner**, Guenther Bauer (TTTech Computertechnik AG), Brendan Hall, Michael Paulitsch and Srivatsan Varadarajan (Honeywell)

*Fast Macro Handover Scheme in Hierarchical IP networks*
Sung-Hyun Nam, **Hyun-Woo Hwang**, Ju-Hyun Kim and Kyung-Geun Lee (Sejong University, Seoul, Korea)

*Efficient Filtering Algorithm for Repeated Queries in DNS Log*
**Zheng Wang** (China Internet Network Information Center, China; Chinese Academy of Sciences, China; and Graduate University of Chinese Academy of Sciences, China), Xiaodong Lee, Jian Jin (China Internet Network Information Center, China and Chinese Academy of Sciences, China) and Baoping Yan (Chinese Academy of Sciences, China)

### Closing Remarks
Thanks to all the volunteers who made NCA09 a success.

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  Little Rock, AR, USA
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