

# Technical Program

## 10<sup>th</sup> Annual IEEE International Symposium on Network Computing and Applications

IEEE NCA11

Hotel Marlowe  
Cambridge, MA USA

[www.ieee-nca.org](http://www.ieee-nca.org)  
25 – 27 August 2011

Sponsored by



*Irianc*

## Thursday, 25 August 2011

7:30 – 8:00 Serrano Foyer	<b>Registration / Breakfast</b>	
8:00 – 8:15 Serrano B/C	<b>Opening Remarks</b>	
	<b>Theory of Network Computing</b>	<b>Session Chair</b>
	<i>B-Neck: A Distributed and Quiescent Max-min Fair Algorithm</i> Alberto Mozo, Jose Luis López-Presa and <b>Antonio Fernández Anta</b>	<b>Miroslav Malek</b> Humboldt University
8:15 – 9:45 Serrano B/C	<i>Treewidth and Hyperbolicity of the Internet</i> <b>Fabien de Montgolfier</b> , Mauricio Soto and Laurent Viennot	
	<i>Probabilistic FIFO Ordering In Publish/Subscribe Networks</i> <b>Amirhossein Malekpour</b> , Antonio Carzaniga, Giovanni Toffetti Carughi and Fernando Pedone	
9:45 – 10:05 Serrano Foyer	<b>Break</b>	
	<b>Best Student Paper</b>	<b>Session Chair</b>
10:05 – 10:50 Serrano B/C	<i>PAWDS: A Roadmap Profile-driven Adaptive System for Alert Dissemination in VANETs</i> Manuel Fogue, Piedad Garrido, Francisco J. Martinez, Juan-Carlos Cano, Carlos T. Calafate and <b>Pietro Manzoni</b>	<b>Hans-Peter Schwefel</b> Research Center for Telecommunications
10:50 – 11:00 Serrano Foyer	<b>Break</b>	
	<b>Dependable Network Computing</b>	<b>Session Chair</b>
11:00 – 12:00 Serrano B/C	<i>A Resilient Architecture Oriented to P2P Computing</i> <b>Damià Castellà</b> , Francesc Giné and Francesc Solsona	<b>Erik Maehle</b> University of Luebeck
	<i>Self-Recovering Parallel Applications in Multi-Core Systems</i> Gilles Bizot, Dimiter Avresky, <b>Fabien Chaix</b> , Nacer-Eddine Zergainoh and Michael Nicolaidis	
12:00 – 13:30 Serrano A	<b>Lunch</b>	
	<b>Theoretical Aspects of Network Computing (part 1)</b>	<b>Session Chair</b>
13:30 – 14:30 Serrano B/C	<i>A Hybrid Granularity Graph for Improving Application Adaptation Efficacy in Mobile Computing Environments</i> <b>Ermyas Teshome</b> and Caspar Ryan	<b>Mark Tuttle</b> Intel
	<i>Tracking Coverage Throughout Epochs with Bounded Uncertainty</i> Fan Zhou, <b>Goce Trajcevski</b> and Besim Avci	
14:30 – 14:50 Serrano Foyer	<b>Break (dessert)</b>	

---

## Theoretical Aspects of Network Computing (part 2)

**Session Chair**

**Mark Tuttle**

Intel

14:50 – 15:50  
Serrano B/C

*Towards Feasible Implementations of Low-Latency Multi-Writer Atomic Registers*  
**Chryssis Georgiou, Nicolas Nicolaou, Alexander Russell and Alexander Shvartsman**

*SCAN: An Efficient Decoding Algorithm for RAID-6 Codes*  
**Jianqiang Luo and Lihao Xu**

---

15:50 – 16:00  
Serrano Foyer

**Break**

---

## Network Security

**Session Chair**

**Vijay Ganesh**

MIT CSAIL

16:00 – 17:30  
Serrano B/C

*Scheduler Vulnerabilities and Coordinated Attacks in Cloud Computing*  
**Fangfei Zhou, Manish Goel, Peter Desnoyers and Ravi Sundaram**

*A Subset Coding Based k-Anonymization Technique to Trade-off Location Privacy and Data Integrity in Participatory Sensing Systems*  
**Manzur Murshed, Anindya Iqbal, Tishna Sabrina and Kh Mahmudul Alam**

*xMiner: Nip the Zero Day Exploits in the Bud*  
**M. Zubair Rafique and Muhammad Abulaish**

---

17:30 – 18:30  
Alexis Gallery

## Networking Reception

Cocktails and Hors d'oeuvres

---

# Friday, 26 August 2011

8:15 – 8:45  
Serrano Foyer

**Breakfast**

---

8:45 – 9:30  
Serrano B/C

## Best Paper

*Belisarius: Byzantine Fault-tolerant Storage with Confidentiality*  
**Ricardo Padilha and Fernando Pedone**

**Session Chair**

**Peter**

**Scheuermann**

Northwestern  
University

---

9:30 – 9:45  
Serrano Foyer

**Break**

---

## Mobile Ad Hoc Networks (part 1)

**Session Chair**

**Hans-Peter**

**Schwefel**

Research Center for  
Telecommunications

9:45 – 10:45  
Serrano B/C

*Engineering the Virtual Node Layer for Reactive MANET Routing*  
**Jiang Wu, Nancy Griffeth, Calvin Newport and Nancy Lynch**

*Using Performance, Energy Consumption, and Resilience Experimental Measures to Evaluate Routing Protocols for Ad Hoc Networks*  
**Jesús Friginal, David de Andrés, Juan-Carlos Ruiz and Pedro Gil**

---

10:45 – 11:00  
Serrano Foyer

**Break**

---

	<b>Cloud Computing</b>	<b>Session Chair</b>
11:00 – 12:00 Serrano B/C	<i>Beyond Power Proportionality: Designing Power-Lean Cloud Storage</i> <b>Lakshmi Ganesh</b> , Hakim Weatherspoon and Ken Birman <i>Thread-Based Live Checkpointing of Virtual Machines</i> Vasinee Siripoonya and <b>Kasidit Chanchio</b>	<b>Erik Maehle</b> University of Luebeck
12:00 – 13:15 Serrano A	<b>Lunch</b>	
	<b>Machine Learning Techniques for Predicting</b>	<b>Session Chair</b>
13:15 – 14:15 Serrano B/C	<i>Predicting Software Anomalies, based on Machine Learning Techniques</i> <b>Javier Alonso</b> , Lluís Belanche and Dimiter Avresky <i>Adaptive Profiling for Root-cause Analysis of Performance Anomalies in Web-based Applications</i> <b>João Magalhães</b> and Luis Silva	<b>TBA</b>
14:15 – 14:40 Serrano Foyer	<b>Break (dessert)</b>	
	<b>Performance Modeling and QoS</b>	<b>Session Chair</b>
14:40 – 16:10 Serrano B/C	<i>Non-intrusive Estimation of QoS Degradation Impact on E-commerce User Satisfaction</i> <b>Nicolas Poggi</b> , David Carrera, Ricard Gavaldà and Eduard Ayguadé <i>Evaluating the Impact of Management Traffic and Self-Similarity on Wireless Network Performance</i> <b>Priscila Solis Barreto</b> and Tiago Flor Bento <i>Optimal Model-based Policies for Component Migration of Mobile Cloud Services</i> Rene Gabner, <b>Hans-Peter Schwefel</b> , Karin Anna Hummel and Günter Haring	<b>Peter Scheuermann</b> Northwestern University
16:10 – 16:20 Serrano Foyer	<b>Break</b>	
16:20 – 17:20 Serrano B/C	<b>Keynote</b> <i>Networked Video: Challenges and Opportunities for Service Providers</i> <b>Bruce Davie</b> , Cisco Fellow, Cisco Systems, Inc.	<b>Session Chair</b> <b>D. R. Avresky</b> Irianc
17:20 – 18:00	<b>On your own</b>	
18:00 – 19:00 Serrano Foyer	<b>Reception</b> Cocktails & Hors d'oeuvres	
19:00 – 21:00 Serrano C	<b>Banquet</b>	

# Saturday, 27 August 2011

7:30 – 8:00  
Serrano Foyer

## Breakfast

### Mobile Ad Hoc Networks (part 2)

*Formalization of the Necessary and Sufficient Connectivity Conditions to the Distributed Mutual Exclusion Problem in Dynamic Networks*

### Session Chair

**Rasmus Olsen**  
Aalborg University

8:00 – 9:00  
Serrano B/C

**Paulo Floriano**, Alfredo Goldman and Luciana Arantes

*A Novel Multi-channel Cognitive Radio Network with Throughput Analysis at Saturation Load*

Rashidul Hasan and Manzur Murshed (presenter **Anindya Iqbal**)

9:00 – 9:20  
Serrano Foyer

## Break

## Parallel Session I

### Workshop – Interconnection Networks for Multicore Chips

### Session Chair

9:20 – 9:40  
Serrano B

*NoC Reconfiguration for CMP Virtualization*

**D. R. Avresky**  
Irianc

**Francisco Triviño-García**, Francisco J. Alfaro-Cortes, José L. Sánchez-García and José Flich-Cardo

### Overlay Networks/Peer to Peer Systems

### Session Chair

9:40 – 11:00  
Serrano B

*On-Line Detection of Encrypted Traffic Generated by Mesh-Based Peer-to-Peer Live Streaming Applications: The Case of GoalBit*

**Luis Rodrigues**  
IST/INESC-ID

André Esteves, **Pedro Inácio**, Manuela Pereira and Mário Freire

*ScaleStream – An Adaptive Replication Algorithm for Scalable Multimedia Streaming*

Shabnam Ataee, **Benoit Garbinato**, Mouna Allani and Fernando Pedone

*SYNI – TCP Hole Punching Based on SYN Injection*

Sebastian Holzapfel, **Matthäus Wander**, Arno Wacker and Torben Weis

11:00 – 11:10  
Serrano Foyer

## Break

### Self-configuring Networks

### Session Chair

*Application of a Self-healing Video-streaming Architecture to RTSP Servers*

Carlos Cunha and Luis Silva (presenter **João Magalhães**)

**Alfredo Goldman**  
University of San Paolo

*Towards Resilient Synchronous e-Training Platforms*

11:10 – 12:30  
Serrano B

Juan C Granda, Pelayo Nuño, Daniel F García and **Francisco J Suárez**

*Improving Adaptive Offloading Efficacy and Efficiency using Distributed Abstract Class Graphs in Mobile Environments*

**Ermyas Abebe** and Caspar Ryan

*PLAN-B: Proximity-based Lightweight Adaptive Network Broadcasting*

Adrian Holzer, François Vessaz, Samuel Pierre and **Benoît Garbinato**

12:30 – 14:00  
Muse

## Lunch

---

## Dependable Networks and Systems

Session Chair

D. R. Avresky

Irianc

*A Generic Framework for Replicated Software Transactional Memories*

Nuno Carvalho, Paolo Romano and **Luís Rodrigues**

*Algorithmic Mechanisms for Internet Supercomputing under Unreliable Communication*

14:00 – 15:20 **Evgenia Christoforou**, Antonio Fernandez Anta, Chryssis Georgiou and Miguel Mosteiro

*A Framework for Transparent Fault-Tolerant Remote Method Invocation*

**Diogo Reis** and Hugo Miranda

*Two-Party Mobile Authentication Protocols for Wireless Roaming Networks*

Abdullah Almuhaideb, Phu Dung Le and Bala Srinivasan (presenter **Anindya Iqbal**)

---

15:20 – 15:40

Serrano Foyer

## Break (dessert)

---

## Performance Modeling and QoS

Session Chair

TBA

*An Enhanced-MDP Based Vertical Handoff Algorithm for QoS Support over Heterogeneous Wireless Networks*

Shusmita A. Sharna, Mohammad R. Amin and Manzur Murshed (presenter **Anwar Sadat**)

15:40 – 16:40

Serrano B

*Performance trade-offs of a IEEE 802.21-based vertical handover decision algorithm under different network conditions*

Johann M. Márquez-Barja, Carlos T. Calafate, Juan-Carlos Cano and **Pietro Manzoni**

*Decentralized Topology Aggregation for QoS Estimation in Large Overlay Networks*

**Stefan Wieser** and Laszlo Böszörményi

---

16:40 – 17:00

Serrano B

## Closing Remarks

---

## Parallel Session II

### Routing Mechanisms

Session Chair

TBA

*Efficient Encoding for Generalized Reed Solomon Codes*

**Mochan Shrestha** and Lihao Xu

*IPv4+6*

**Yongmao Ren**, Hualin Qian, Yuepeng E, Jun Li and Jingguo Ge

*Adaptive Fragmentation Design for Web Documents to Improve Cache*

9:20 – 11:00 *Performance. Applicability in Content Management Systems*

Serrano C

Carlos Guerrero, **Carlos Juiz** and Ramon Puigjaner

*Building Autonomically Scalable Services on Wide-Area Shared Computing Platforms*

Vinit Padhye and **Anand Tripathi**

*Evaluation of an Alternative for Increasing Switch Radix*

**Juan A. Villar-Ortiz**, Francisco J. Andujar-Muñoz, Jose L. Sanchez-Garcia, Francisco J. Alfaro-Cortes and Jose Duato

---

11:00 – 11:10  
Serrano Foyer

**Break**

---

**Practical Experiments and Prototypes**

**Session Chair**

*From a Database Management System to a Policy-based Network Management System*

**Javier Alonso**  
BSC – UPS

**Tzong-An Su** and Chen-Feng Chiu

11:10 – 12:30  
Serrano C

*Performance Evaluation of DCB's Priority-based Flow Control*

**Mikkel Hagen** and Ryan Zarick

*End-to-end Data Deduplication for the Mobile Web*

**Ricardo Filipe** and João Barreto

*Detecting User-Visible Failures in Web-Sites by using End-to-End Fine-Grained Monitoring: An Experimental Study*

Carlos Vaz, Luis Silva and Antonio Dourado (presenter **João Magalhães**)

---

12:30 – 14:00  
Muse

**Lunch**

---

**Sensor Networks**

**Session Chair**

*Optimum Clusters for Reliable and Energy Efficient Wireless Sensor Networks*

**Goce Trajcevski**  
Northwestern  
University

**Anwar Sadat** and Gour Karmakar

14:00 – 15:20  
Serrano C

*Dynamic Event Coverage in Hybrid Wireless Sensor Networks*

Kh Mahmudul Alam, Joarder Kamruzzaman, Gour Karmakar and Manzur Murshed (presenter **Shaila Pervin**)

*Quality Adjustable Query Processing Framework for Wireless Sensor Networks*

**Shaila Pervin**, Joarder Kamruzzaman and Gour Karmakar

---

15:20 – 15:40  
Serrano Foyer

**Break (dessert)**

---

**Cloud Computing**

**Session Chair**

*Constrained Pricing for Cloud Resource Allocation*

**TBA**

15:40 – 16:40  
Serrano C

**Makhlouf Hadji**, Wajdi Louati and Djamel Zeghlache

*Clustering Soap Web Services on Internet Computing using Fast Fractals*

**Dhiah Al-Shammery**, Ibrahim Khalil and Loay George

---

16:40 – 17:00  
Serrano B

**Closing Remarks**

---

# Thanks to all the volunteers who made NCA11 a success.

## Steering Committee Chair

D. R. Avresky  
IRIANC, USA

## Program Chair

P. Scheuermann  
Northwestern University, USA  
peters@eecs.northwestern.edu

## General & Financial Chair

S. J. Geoghegan  
Bloomberg, USA  
geoghegan@suddenlink.net

## Publication Chair

Rasmus L. Olsen  
Aalborg University, Denmark  
rlo@es.aau.dk

## Publicity Co-Chair

P. Romano  
INESC-ID, Portugal  
romanop@dis.uniroma1.it

## Publicity Co-Chair

Tatsuhiko Tsuchiya  
Osaka University, Japan  
t-tutiya@ist.osaka-u.ac.jp

## Program Committee

- J. Alonso, BSC – UPS, Barcelona, Spain  
A. Bode, Technical University of Munich, Germany  
K. Boyadjiev, Attend Systems, CA, USA  
Y. Brun, University of Washington, USA  
J. Becker, Karlsruhe Institute of Technology, Germany  
B. Bhargava, Purdue University, USA  
F. Cappello, INRIA, Paris, France & UIUC, USA  
B. Ciciani, University of Roma, Italy  
M. Coates, University of McGill, Canada  
A. Chronopoulos, UTD, San Antonio, USA  
C. Elks, University of Virginia, USA  
J. Garcia, CNRS-LAAS, QoS Design, Toulouse, France  
V. Ganesh, CSAIL, MIT, Cambridge, USA  
I. Gashi, City University, London, UK  
A. Goldman, University of San Paolo, Brazil  
S. Geoghegan, Bloomberg, USA  
R. Guerraoui, EPFL, Switzerland  
N. Hardavellas, Northwestern University, USA  
H. Hellwagner, University of Klagenfurt, Austria  
B. Johnson, University of Virginia, USA  
T. Kikuno, Osaka University, Japan  
C. Katsinis, Drexel, University, USA  
R. Khazan, MIT Lincoln Labs, USA  
A. Khokhar, University of Illinois at Chicago, USA  
I. Khalil, RMIT, Melbourne, Australia  
C. Leita, Symantec- Europe, France  
T. Little, Boston University, USA  
G. Malewicz, Google, Mountain View, USA  
E. Maehle, University of Luebeck, Germany  
M. Malek, Humboldt University, Germany  
S. Madria, Missouri University of S&T, USA  
E. Nett, University of Magdeburg, Germany  
S. Papavasileiou, University of Athens, Greece  
T. Pioteck, University of Luebeck, Germany  
F. Pong, BroadCom, USA  
A. Puliafito, University of Messina, Italy  
F. Quaglia, University of Roma, Italy  
P. Romano, INESC-ID, Portugal  
H. Schwefel Research Center for Telecommunications, Vienna, Austria  
T. Strayer, BBN, Cambridge, USA  
L. Silva, University of Coimbra, Portugal  
I. Soler, Atos-Research, Barcelona, Spain  
D. Stefanescu, Suffolk University, USA  
W. Steiner, TTTech & CT AG, Vienna, Austria  
C. Trinitis, TU Munich, Munich, Germany  
M. Tuttle, Intel, Hudson, USA  
G. Trajcevski, Northwestern University, USA  
M. Vouk, NC State University, USA  
S. Voulgaris, Vrije Universiteit, Amsterdam, Holland  
B. Wolfinger, University of Hamburg, Germany  
M. Zuniga, University of Duisburg, Ireland