

**The 6<sup>th</sup> IEEE International Symposium  
on  
Network Computing  
and Applications**

**IEEE NCA07**

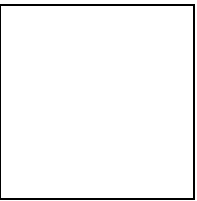
**12-14 July 2007**

Hotel Marlowe  
Cambridge, MA USA

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# Technical Program

Paper presenters and their affiliations are indicated in bold.

**Thursday, 12 July 2007**

8:00 - 8:45 **Registration / Continental Breakfast**

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## **Opening Remarks**

8:45 - 9:00 **D. R. Avresky**  
**IRIANC, Boston, MA, USA**

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## **Best Paper (Theory)**

9:00 - 9:45 *Approximate Analytical Models for Networked Servers Subject to MMPP Arrival Processes*  
**Bruno Ciciani**, **Andrea Santoro**, and **Paolo Romano**  
**University of Rome "La Sapienza", Italy**

**Session Chair**  
**M. Wolf**  
Georgia Tech /  
Oak Ridge National Lab  
USA

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9:45 - 10:00 **Coffee Break**

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## **Keynote Speaker** **Afonso Ferreira**

10:00 - 11:00 *Research Opportunities in ICT: Europe 2007-2013 and Beyond*  
**Afonso Ferreira**  
**COST, European Commission RTD Framework Programme, Brussels, Belgium**

**Session Chair**  
**D. R. Avresky**  
IRIANC, Boston, MA  
USA

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## **Section - Internet Traffic**

*Impact of Request Dispatching Granularity in Geographically Distributed Web Systems*

**Mauro Andreolini**, **Claudia Canali**, and **Riccardo Lancellotti**  
**University of Modena and Reggio Emilia, Italy**

*Study of Bursty Internet Traffic*

11:00 - 12:40 **Kannikar Siri Wong**, **Lester Lipsky**, and **Reda Ammar**  
**University of Connecticut, USA**

*Discovering Web Workload Characteristics through Cluster Analysis*  
**Fengbin Li**, **Katerina Goseva-Popstojanova**, and **Arun Ross**  
**West Virginia University, USA**

*Transparent and Accurate Traffic Load Estimation for Enterprise Wireless LAN*

**Gang Wu**, **Fanglu Guo**, and **Tzi-cker Chiueh**  
**Stony Brook University, USA**

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**Session Chair**  
**T. Little**  
Boston University  
USA

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12:40 - 1:45 **Lunch**

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## **Section – Distributed Storage**

*Pyramid Codes: Flexible Schemes to Trade Space for Access Efficiency in Reliable Data Storage Systems*

**Cheng Huang**, **Minghua Chen**, and **Jin Li**  
**Microsoft Research, USA**

1:45 - 3:00 *Transparent Reliable Multicast for Ethernet-Based Storage Area Networks*  
**Shibiao Lin**, **Maohua Lu**, and **Tzi-cker Chiueh**  
**Stony Brook University, USA**

*FRAC: Implementing Role-Based Access Control for Network File Systems*  
**Aniruddha Bohra**, **Stephen Smaldone**, and **Liviu Iftode**  
**Rutgers University, USA**

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**Session Chair**  
**B. Ciciani**  
University of Roma  
Italy

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3:00 - 3:30 **Coffee Break**

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**Keynote Speaker**  
**Rick Schlichting**  
3:30 - 4:30 *The Lost Art of Abstraction*  
**Rick Schlichting**  
**AT&T Labs-Research, NJ, USA**

**Session Chair**  
**Erik Maehle**  
University of Luebeck  
Germany

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**Section - Short Papers**  
*Supporting Scalable and Cooperative Interval Caching in a Clustered Video Server*  
Suneuy Kim and **Kim Hang Thi Tran**  
**San Jose State University, USA**

**Session Chair**  
**M. Tuttle**  
Intel  
USA

*GORDA: An Open Architecture for Database Replication*  
**Alfrânio Correia Jr.**, José Pereira, Luís Rodrigues, Nuno Carvalho, Ricardo Vilaça, Rui Oliveira, and Susana Guedes  
**University of Minho, Campus de Gualtar, Portugal**

4:30 - 5:45 *Towards IQ-Appliances: Quality-Awareness in Information Virtualization*  
Radhika Niranjana, **Ada Gavrilovska**, Karsten Schwan, and Priyanka Tembey  
**Georgia Institute of Technology, USA**

*Scheduling Bulk File Transfers with Start and End Times*  
Kannan Rajah, **Sanjay Ranka**, and Ye Xia  
**University of Florida, USA**

*Constructing Overlay Networks with Low Link Costs and Short Paths*  
**Fuminori Makikawa**, Takafumi Matsuo, Tatsuhiro Tsuchiya, and Tohru Kikuno  
**Osaka University, Japan**

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5:45 - 6:30 **Walk to Akamai Technologies, Inc.**  
We will leave from the hotel lobby at 6:00.

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### **Akamai Technologies, Inc. Visit**

Hosted jointly by Prof. T. Leighton, Bobby Blumofe, and Harald Prokop.

Akamai Technologies, Inc. is the world leader of reliable content delivery via the Internet.

Prof. T. Leighton is a Professor at MIT and Chief Scientist of Akamai Technologies, Inc. Dr. Leighton is a Fellow of the American Academy of Arts and Sciences and the National Academy of Engineering.

6:30 - 7:30 Bobby Blumofe is Vice President of Networks and Operations, Akamai Technologies, Inc.

Harald Prokop is Vice President of Engineering, Akamai Technologies, Inc.

The hosts will provide a technical tour and a live demonstration of a reliable distributed network with 14,000 servers in more than 60 countries.

Heavy hors d'oeuvres will be served.

Twenty (20) minute walk from the Hotel Marlowe

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# Friday, 13 July 2007

8:00 - 8:30 **Continental Breakfast**

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## **Section - Publish/Subscribe and Peer-to-Peer**

*Distributed Subscriptions Clustering with Limited Knowledge Sharing for Content-Based Publish/Subscribe Systems*

**Emiliano Casalicchio** and Federico Morabito  
**Universita di Roma "Tor Vergata", Italy**

*Fail-Aware Publish/Subscribe*

8:30 - 10:10 **Zbigniew Jerzak**, Robert Fach, and Christof Fetzer  
**Technical University Dresden, Germany**

*Message Diffusion in Unstructured Overlay Networks*

**Jianxia Chen**, Lakshmish Ramaswamy, and Archana Meka  
**University of Georgia, USA**

*Exploiting Host Name Locality for Reduced Stretch P2P Routing*

**Gert Pfeifer**, Christof Fetzer, and Thomas Hohnstein  
**Technical University Dresden, Germany**

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## **Session Chair**

**Tohru Kikuno**  
Osaka University  
Japan

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10:10 - 10:30 **Coffee Break**

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## **Best paper (Applications)**

*Using Virtualization to Improve Software Rejuvenation*

10:30 - 11:15 Luis Silva, **Javier Alonso**, Paulo Silva, Jordi Torres, and Artur Andrzejak  
**Technical University of Catalonia (UPC), Spain**

## **Session Chair**

**M. Vouk**  
North Carolina State  
University  
USA

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## **Keynote Speaker**

**Michel Raynal**

11:15 - 12:15 *Eventual Leader Service in Unreliable Asynchronous Systems: Why? How?*

**Michel Raynal**  
**IRISA, Université de Rennes, France**

## **Session Chair**

**R. Schlichting**  
AT&T Research  
USA

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12:15 - 1:30 **Lunch**

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## **Section - Security**

*Security and Performance Analysis of a Secure Clustering Protocol for Sensor Networks*

**Pubali Banerjee**  
**Iowa State University, USA**

*Dynamic Load Balancing for Network Intrusion Detection Systems Based on Distributed Architectures*

1:30 - 3:10 Mauro Andreolini, Sara Casolari, Michele Colajanni, and **Mirco Marchetti**  
**University of Modena and Reggio Emilia, Italy**

*Accurate Inter-transaction Dependency Tracking for Repairable DBMS*

Shweta Bajpai, Alexey Smirnov, and **Tzi-cker Chiueh**  
**Stony Brook University, USA**

*A Topological Analysis of Monitor Placement*

**Alden Jackson**, Walter Milliken, Cesar Santivanez, Matthew Condell, and W. Timothy Strayer  
**BBN Technologies, USA**

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## **Session Chair**

**Alden Jackson**  
BBN Technologies  
USA

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3:10 - 3:30 **Coffee Break**

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## Keynote Speaker

**Peiter Zatko**

3:30 - 4:30 *Novel Approaches to Data Acquisition and System Compromise*

**Peiter Zatko**

**BBN Technologies, Cambridge, MA, USA**

## Session Chair

**T. Strayer**

BBN Technologies  
USA

## Trustworthy Network Computing Workshop

*Experiences from Building Service and Object Replication Middleware*

Johannes Osrael, Lorenz Frohofer, and **Karl Michael Goeschka**

**Vienna University of Technology, Austria**

*Autonomous Data Replication Using Q-Learning for Unstructured P2P Networks*

**Sabu M. Thampi** and K. Chandra Sekaran

**L.B.S. College of Engineering, India**

*TinyTate: Computing the Tate Pairing in Resource-Constrained Sensor Nodes*

4:30 - 5:45 **Leonardo B. Oliveira**, Diego F. Aranha, Eduardo Morais, Felipe Daguano,

Julio López, and Ricardo Dahab

**UNICAMP, Brazil**

*Multilayer In-service Reconfiguration for Network Computing Systems*

**Nobuharu Kami**, Jun Suzuki, Yoichi Hidaka, Takashi Yoshikawa, and Atsushi

Iwata

**NEC Corporation, Japan**

*Survival Architecture for Distributed Intrusion Detection System (dIDS) using Mobile Agent*

**Sartid Vongpradip** and Wichet Plaimart

**Chulalongkorn University, Thailand**

## Session Chair

**M. Atighetchi**

BBN Technologies  
USA

# Saturday, 14 July 2007

8:00 - 8:30 **Continental Breakfast**

## Section – Fault Tolerance

*Scalable Communication for High Performance and Inexpensive Reliable QoS*

*Using Relaxed Recovery*

**Ing-Wher Chen** and Mabo Ito

**University of British Columbia, Canada**

## Session Chair

**S. Geoghegan**

University of Arkansas  
at Little Rock  
USA

8:30 - 9:45 *GridTS: A New Approach for Fault-Tolerant Scheduling in Grid Computing*

Fábio Favarim, Joni da Silva Fraga, **Lau Cheuk Lung**, and Miguel Correia

**Pontifícia Universidade Católica do Paraná, Brazil**

*Aspect-Oriented Programming Techniques to Support Distribution, Fault Tolerance, and Load Balancing in the CORBA-LC Component Model*

**Diego Sevilla**, José M. García, and Antonio Gómez

**Universidad de Murcia, Spain**

9:45 - 10:10 **Coffee Break**

## Section – Performance

*Accelerating Web Protocols Using RDMA*

**Dennis Dalessandro** and Pete Wyckoff

10:10 - 11:00 **Ohio Supercomputer Center, USA**

*Improving Network Processing Concurrency Using TCP Servers*

**Aniruddha Bohra** and Liviu Iftode

**Rutgers University, USA**

## Session Chair

**Lester Lipsky**

University of  
Connecticut  
USA

## Section - Adaptive and Dynamic Networks

*Implementing Atomic Data through Indirect Learning in Dynamic Networks*  
Kishori M. Konwar, **Peter M. Musial**, Nicolas C. Nicolaou, and Alex A. Shvartsman

**VeroModo, Inc. and University of Connecticut, USA**

## Session Chair

**Nian-Feng**

University of Louisiana  
at Lafayette  
USA

11:00 - 12:15

*Decoupled Quorum-Based Byzantine-Resilient Coordination in Open Distributed Systems*

**Alysson Neves Bessani**, Miguel Correia, Joni da Silva Fraga, and Lau Cheuk Lung

**Faculdade de Ciências da Universidade de Lisboa, Portugal**

*Autonomic Resource Management for Multiple-Spanning-Tree Metro-Ethernet Networks*

**Shibiao Lin**, Srikant Sharma, and Tzi-cker Chiueh

**Stony Brook University, USA**

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12:15 - 1:30 **Lunch**

## Short Papers

*Exact Forwarding Table Partitioning for Efficient TCAM Power Savings*

Gesan Wang and **Nian-Feng Tzeng**

**University of Louisiana at Lafayette, USA**

## Session Chair

**Dario Bruneo**

University of Messina  
Italy

*Adaptive Search Radius - Lowering Internet P2P File-Sharing Traffic through Self-Restraint*

1:30 - 2:15 **Ricardo Lopes Pereira**, Teresa Vazão, and Rodrigo Rodrigues

**Instituto Superior Técnico / INESC-ID, Portugal**

*Using BIP for Modeling and Verification of Networked Systems - A Case Study on TinyOS-Based Networks*

Ananda Basu, Laurent Mounier, **Marc Poulhiès**, Jacques Pulou, and Joseph Sifakis

**VERIMAG, France**

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2:15 - 2:45 **Coffee Break**

## Short Papers

*A Global On-demand Routing Protocol for Mobile Ad Hoc Networks*

**Fenglien Lee**, Haklin Kimm, and Craig Reinhart

**University of Guam, USA**

## Session Chair

**R. Pereira**

Instituto Superior  
Técnico / INESC-ID  
Portugal

*A Swarm-Based Routing Protocol for Wireless Sensor Networks*

Maurizio Paone, Luca Paladina, **Dario Bruneo**, and Antonio Puliafito

**University of Messina, Italy**

2:45 - 3:45

*Impact of Scale-Free Topologies on Gossiping in Ad Hoc Networks*

Benoît Garbinato, **Denis Rochat**, and Marco Tomassini

**University of Lausanne, Switzerland**

*Enabling Skip Graphs to Process K-Dimensional Range Queries in a Mobile Sensor Network*

**Gregory J. Brault**, Christopher J. Augeri, Barry E. Mullins, Rusty O. Baldwin, and Christopher B. Mayer

**Air Force Institute of Technology, USA**

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3:45 - 4:15 **Closing Remarks**

## Thanks to all the volunteers who made NCA07 a success.

### Distinguished Chair

Tom Leighton  
MIT-CSAIL, Cambridge, USA  
Akamai Technologies, Inc., USA

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University of Virginia, USA

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## The 6th IEEE International Symposium on Network Computing and Applications



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