

2012 IEEE 11th International Symposium on Network Computing and Applications

(NCA 2012)

**Cambridge, Massachusetts, USA
23 – 25 August 2012**



**IEEE Catalog Number: CFP12295-PRT
ISBN: 978-1-4673-2214-0**

2012 IEEE 11th International Symposium on Network Computing and Applications

NCA 2012

Table of Contents

Message from the Steering Committee Chair	x
Message from Program Committee Chair and the Program Committee Co-Chair	xi
Conference Committee	xiii
Program Committee	xiv
Invited Keynote Speaker	xv

Overlay Networks/Peer-to-Peer Systems

Greening the Internet: Energy-Optimal File Distribution	1
<i>Kshitiz Verma, Gianluca Rizzo, Antonio Fernández Anta, Rubén Cuevas Rumín, and Arturo Azcorra</i>	
WebCloud: Recruiting Social Network Users to Assist in Content Distribution	10
<i>Fangfei Zhou, Liang Zhang, Eric Franco, Alan Mislove, Richard Revis, and Ravi Sundaram</i>	
Dynamic Semantic Data Replication for K-Random Search in Peer-to-Peer Networks	20
<i>Xiaoqi Cao and Matthias Klusch</i>	

Theoretical Aspects of Network Computing

An Information Divergence Estimation over Data Streams	28
<i>Emmanuelle Anceaume and Yann Busnel</i>	
A Distributed Merge-and-Split Mechanism for Dynamic Virtual Organization Formation in Grids	36
<i>Lena Mashayekhy and Daniel Grosu</i>	

Dependable Network Computing

Chasing the Weakest Failure Detector for k-Set Agreement in Message-Passing Systems	44
<i>Achour Mostefaoui, Michel Raynal, and Julien Stainer</i>	
Towards Byzantine Resilient Directories	52
<i>Ali Shoker and Jean-Paul Bahsoun</i>	
A Technique for Self-Optimizing Scalable and Dependable Server Clusters under QoS Constraints	61
<i>Ramón Medrano Llamas, Daniel F. García, and Joaquín Entrialgo</i>	
Application of Regenerating Codes for Fault Tolerance in Distributed Storage Systems	67
<i>Kathrin Peter and Peter Sobe</i>	

Performance Modeling/Quality of Services (QoS) Issues Part 1

Internet Distance Prediction Using Node-Pair Geography	71
<i>Ankur Jain and Joseph Pasquale</i>	
Modelling Web-server Flash Events	79
<i>Sajal Bhatia, George Mohay, Desmond Schmidt, and Alan Tickle</i>	

Computation Intensive Applications and Programming Environments

A Pipelining Approach to Informed Prefetching in Distributed Multi-level Storage Systems	87
<i>Maen M. Al Assaf, Mohammed I. Alghamdi, Xunfei Jiang, Ji Zhang, and Xiao Qin</i>	
Two-Dimensional Dynamic Loop Scheduling Schemes for Computer Clusters	96
<i>Anthony T. Chronopoulos, Satish Penmatsa, Naveen Jayakumar, and Eric Ogharandukun</i>	

Routing Mechanisms

Energy Efficient Routing Based on Connected Dominating Sets	101
<i>Y. Massad, J. Villadangos, and V. Cholvi</i>	
Delay-Aware Query Routing Tree for Wireless Sensor Networks	105
<i>Shaila Pervin, Joarder Kamruzzaman, and Gour Karmakar</i>	
Phoenix: A Protocol for Seamless Client Mobility in Publish/Subscribe	111
<i>Zigor Salvador, Mikel Larrea, and Alberto Lafuente</i>	

Mobile Ad-Hoc Networks (MANET)

Spotcast—A Communication Abstraction for Proximity-Based Mobile Applications	121
<i>Behnaz Bostanipour, Benoît Garbinato, and Adrian Holzer</i>	
Interest-Centric Mobile Ad Hoc Networks	130
<i>Renato C. Dutra, Heberte F. Moraes, and Claudio L. Amorim</i>	

A Performance Evaluation of HRAN: A Hybrid Routing Protocol Using Bloom Filters for Wireless Mobile Ad Hoc Networks	139
<i>João Trindade and Teresa Vazão</i>	

Performance Modeling/Quality of Services (QoS) Issues Part 2

The Impact of User’s Dynamic Behavior on Web Performance	143
<i>Raúl Peña-Ortiz, José A. Gil, Julio Sahuquillo, and Ana Pont</i>	
A Reservation Scheme for QoS Provision within Mobile Multihop Relay Networks	151
<i>Neila Krichene and Noureddine Boudriga</i>	

Cloud Computing Part 1

Performance Aspects of Data Transfer in a New Networked I/O Architecture	155
<i>Cynthia Taylor and Joseph Pasquale</i>	
A Density-Based Anomaly Detection Method for MapReduce	159
<i>Kai Wang, Ying Wang, and Bo Yin</i>	
A Novel Associative Model of Data: Toward a Distributed Large-Scale Data Processing Scheme for Future Computer Clouds	163
<i>Amir H. Basirat and Asad I. Khan</i>	

Cloud Computing Part 2

Deploying Virtual Clusters through P2P-based Content Distribution	167
<i>Ian Chang-Yen and Nian-Feng Tzeng</i>	
Task and Server Assignment for Reduction of Energy Consumption in Datacenters	171
<i>Ning Liu, Ziqian Dong, and Roberto Rojas-Cessa</i>	
An Online Power Metering Model for Cloud Environment	175
<i>Yanfei Li, Ying Wang, Bo Yin, and Lu Guan</i>	

Self-Configuring, Healing, Optimizing, Protecting Concepts

Anomaly Detection Techniques for Web-Based Applications: An Experimental Study	181
<i>João Paulo Magalhães and Luis Moura Silva</i>	
Machine Learning Methodology for Enhancing Automated Process in IT Incident Management	191
<i>Haochen Li and Zhiqiang Zhan</i>	

Networking Protocols, Verification, and Validation

Protocol Proof Checking Simplified with SMT	195
<i>Mark R. Tuttle and Amit Goel</i>	

ASAP: An Aggressive SpeculAtive Protocol for Actively Replicated Transactional Systems	203
<i>Roberto Palmieri, Francesco Quaglia, and Paolo Romano</i>	
SLBN: A Scalable Max-min Fair Algorithm for Rate-Based Explicit Congestion Control	212
<i>Alberto Mozo, Jose Luis López-Presa, and Antonio Fernández Anta</i>	
System Area Networks, Scalable Servers	
A New Family of Hybrid Topologies for Large-Scale Interconnection Networks	220
<i>Roberto Peñaranda, Crispín Gómez, María Engracia Gómez, Pedro López, and José Duato</i>	
Infrastructure Provisioning for Scalable Content-Based Routing: Framework and Analysis	228
<i>Raphaël Barazzutti, Pascal Felber, Hugues Mercier, Emanuel Onica, Jean-François Pineau, Etienne Rivière, and Christof Fetzer</i>	
Sensor Networks	
LooCI: The Loosely-coupled Component Infrastructure	236
<i>Danny Hughes, Klaas Thoelen, Jef Maerien, Nelson Matthys, Wouter Horr�, Javier Del Cid, Christophe Huygens, Sam Michiels, and Wouter Joosen</i>	
Local Algorithms for Robust Mission Realization in Large-Scale Disconnected Networks	244
<i>Michel Charpentier, Radim Bartos, and Ying Li</i>	
Cluster-Based Fast Broadcast in Duty-Cycled Wireless Sensor Networks	249
<i>Mustapha Khiati and Djamel Djenouri</i>	
A Localized Algorithm for the Maximum Lifetime Broadcast Problem with Asymmetric Edge Costs	253
<i>Bruno Nunes, Frederico Barboza, and Flavio Morais de Assis Silva</i>	
Security Concepts	
A Multi-fence Countermeasure Based Inter-domain Source Address Validation Method	259
<i>Jie Li, Jun Bi, Jianping Wu, and Wei Zhang</i>	
DiFiSec: An Adaptable Multi-level Security Framework for Event-Driven Communication in Wireless Sensor Networks	263
<i>Syed Rehan Afzal, Christophe Huygens, and Wouter Joosen</i>	

Novel Concepts

Sensing and Actuation as a Service: A New Development for Clouds	272
<i>Salvatore Distefano, Giovanni Merlino, and Antonio Puliafito</i>	
Proximity Detection and Message Exchange in WLANs	276
<i>Sascha Schnauffer, Johannes Kiess, Hendrik Lemelson, Stephan Kopf, Sebastian Geiger, and Wolfgang Effelsberg</i>	
Author Index	281