

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

New York University, NY, USA

Doug Tygar

University of California, Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Yi Pan Daoxu Chen Minyi Guo
Jiannong Cao Jack Dongarra (Eds.)

Parallel and Distributed Processing and Applications

Third International Symposium, ISPA 2005
Nanjing, China, November 2-5, 2005
Proceedings



Springer

Volume Editors

Yi Pan

Georgia State University, Department of Computer Science

Atlanta, GA 30302-4110, USA.

E-mail: pan@cs.gsu.edu

Daoxu Chen

Nanjing University, Department of Computer Science

Nanjing 210093, China

E-mail: cdx@nju.edu.cn

Minyi Guo

The University of Aizu, School of Computer Science and Engineering

Tsuruga, Ikki-machi, Aizu-Wakamatsu City, Fukushima 965-8580, Japan

E-mail: minyi@u-aizu.ac.jp

Jiannong Cao

Hong Kong Polytechnic University, Department of Computing

Hung Hom, Kowloon, Hong Kong

E-mail: csjcao@comp.polyu.edu.hk

Jack Dongarra

University of Tennessee, Computer Science Department

1122 Volunteer Blvd., Knoxville, TN 37996-3450, USA

E-mail: dongarra@cs.utk.edu

Library of Congress Control Number: 2005934458

CR Subject Classification (1998): F.1, F.2, D.1, D.2, D.4, C.2, H.4, K.6

ISSN 0302-9743

ISBN-10 3-540-29769-3 Springer Berlin Heidelberg New York

ISBN-13 978-3-540-29769-7 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springeronline.com

© Springer-Verlag Berlin Heidelberg 2005

Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper SPIN: 11576235 06/3142 5 4 3 2 1 0

Preface

Welcome to the proceedings of ISPA 2005 which was held in the city of Nanjing. Parallel computing has become a mainstream research area in computer science and the ISPA conference has become one of the premier forums for the presentation of new and exciting research on all aspects of parallel computing. We are pleased to present the proceedings for the 3rd International Symposium on Parallel and Distributed Processing and Applications (ISPA 2005), which comprises a collection of excellent technical papers, and keynote speeches. The papers accepted cover a wide range of exciting topics, including architectures, software, networking, and applications.

The conference continues to grow and this year a record total of 968 manuscripts (including workshop submissions) were submitted for consideration by the Program Committee or workshops. From the 645 papers submitted to the main conference, the Program Committee selected only 90 long papers and 19 short papers in the program. Eight workshops complemented the outstanding paper sessions.

The submission and review process worked as follows. Each submission was assigned to two Program Committee members for review. Each Program Committee member prepared a single review for each assigned paper or assigned a paper to an outside reviewer for review. In addition, the program chairs, vice program chairs, and general chairs read all papers when a conflicting review result occurred. Given the large number of submissions, each Program Committee member was assigned roughly 15–20 papers. Based on the review scores, the program chairs along with the vice program chairs made the final decision.

The excellent program required a lot of effort from many people. First, we would like to thank all the authors for their hard work in preparing submissions to the conference. We deeply appreciate the effort and contributions of the Program Committee members who worked very hard to select the very best submissions and to put together an exciting program. The effort of the external reviewers is also deeply appreciated. We are also very grateful to Prof. Sartaj Sahni, Prof. Pen-Chung Yew, and Prof. Susumu Horiguchi for accepting our invitation to present keynote speeches. Thanks go to the workshop chairs for organizing eight excellent workshops on several important topics related to parallel and distributed computing and applications.

We deeply appreciate the tremendous efforts of the vice program chairs, Prof. Ivan Stojmenovic, Prof. Mohamed Ould-Khaoua, Prof. Mark Baker, Prof. Jingling Xue, and Prof. Zhi-Hua Zhou. We would like to thank the general co-chairs, Prof. Jack Dongarra, Prof. Jiannong Cao, and Prof. Jian Lu, for their advice and continued support. Finally, we would like to thank the Steering Committee chairs, Prof. Sartaj Sahni, Prof. Yaoxue Zhang, and Prof. Minyi Guo for the opportunity to serve as the program chairs as well as their guidance through the process. We hope that the attendees enjoyed this conference, found the technical program to be exciting, and had a wonderful time in Nanjing.

Yi Pan and Daoxu Chen
ISPA 2005 Program Co-chairs

Conference Organization

ISPA 2005 was organized mainly by the State Key Laboratory for Novel Software Technology, Nanjing University, China.

General Co-chairs

Jack Dongarra, University of Tennessee, USA

Giannong Cao, Hong Kong Polytechnic University, China

Jian Lu, Nanjing University, China

Program Co-chairs

Yi Pan, Georgia State University, USA

Daoyu Chen, Nanjing University, China

Program Vice-Chairs

Ivan Stojmenovic, University of Ottawa, Canada

Mohamed Ould-Khaoua, University of Glasgow, UK

Mark Baker, University of Portsmouth, UK

Jingling Xue, University of New South Wales, Australia

Zhi-Hua Zhou, Nanjing University, China

Steering Committee Co-chairs

Sartaj Sahni, University of Florida, USA

Yaoxue Zhang, Ministry of Education, China

Minyi Guo, University of Aizu, Japan

Steering Committee

Giannong Cao, Hong Kong Polytechnic University, China

Francis Lau, University of Hong Kong, China

Yi Pan, Georgia State University, USA

Li Xie, Nanjing University, China

Jie Wu, Florida Atlantic University, USA

Laurence T. Yang, St. Francis Xavier University, Canada

Hans P. Zima, California Institute of Technology, USA

Weiming Zheng, Tsinghua University, China

Local Arrangements Chairs

Xianglin Fei, Nanjing University, China

Baowen Xu, Southeast University, China

Ling Chen, Yangzhou University, China

Workshops Chair

Guihai Chen, Nanjing University, China

Tutorials Chair

Yuzhong Sun, Institute of Computing Technology, CAS, China

Publicity Chair

Cho-Li Wang, University of Hong Kong, China

Publication Chair

Hui Wang, University of Aizu, Japan

Conference Secretary

Xuan Xu, Nanjing University, China

Program Committee

Selim G. Akl

Queen's University, Canada

Amy W. Apon

University of Arkansas, USA

Hamid R. Arabnia

University of Georgia, USA

Eduard Ayguade

UPC, Spain

David A. Bader

Georgia Institute of Technology, USA

Mark Baker	University of Portsmouth, UK
Anu Bourgeois	Georgia State University, USA
Wentong Cai	Nanyang Technological University, Singapore
Xing Cai	Univ. of Oslo/Simula Research Lab, Norway
Emmanuel Cecchet	INRIA, France
Weng-Long Chang	Southern Taiwan Univ. of Tech., Taiwan
Guihai Chen	Nanjing University, China
Su-Hui Chiang	Portland State University, USA
Yuanshun Dai	Purdue University, USA
Andrzej M. Goscinski	Deakin University, Australia
Dhrubajyoti Goswami	Concordia University, Canada
Ning Gu	Fudan University, China
Jieyue He	Southeast University, China
Yanxiang He	Wuhan University, China
Hung-Chang Hsiao	National Tsing-Hua University, Taiwan
Jenwei Hsieh	Dell Inc.
Ching-Hsien Hsu	Chung Hua University, Taiwan
Chun-Hsi Huang	University of Connecticut, USA
Tsung-Chuan Huang	National Sun Yat-sen University, Taiwan
Constantinos Ierotheou	University of Greenwich, UK
Stephen Jarvis	University of Warwick, UK
Chris Jeshsope	Universiteit van Amsterdam (UvA), Netherlands
Beihong Jin	Institute of Software, Chinese Academy of Sciences, China
Hai Jin	Huazhong University of Science and Technology, China
Weijia Jia	City University of Hong Kong, China
Ajay Katangur	Texas A&M University at Corpus Christi, USA
Hatsuhiko Kato	Shonan Institute of Technology, Japan
Daniel S. Katz	JPL, California Institute of Technology, USA
Jacques Chassin de Kergommeaux	INPG, LSR-IMAG, Grenoble, France
Raj Kettimuthu	Argonne National Laboratory, USA
Chung-Ta King	National Tsing-Hua University, Taiwan
Dieter Kranzlmüller	Linz University, Austria
Sy-Yen Kuo	National Taiwan University, Taiwan

Chokchai Leangsuksun	Louisiana Tech University, USA
Jie Li	University of Tsukuba, Japan
Minglu Li	Shanghai Jiao Tong University, China
Yamin Li	University of Hosei, Japan
Xiaola Lin	Sun Yat-sen University, China
Zhen Liu	Nagasaki Institute of Applied Science, Japan
Peter Kok Keong Loh	Nanyang Technological University, Singapore
Jianhua Ma	Hosei University, Japan
Praveen Madiraju	Georgia State University, USA
Geyong Min	University of Bradford, UK
Michael Ng	University of Hong Kong, China
Jun Ni	University of Iowa, USA
Manish Parashar	Rutgers University, USA
Andrea Passarella	University of Pisa, Italy
Rolf Rabenseifner	Rechenzentrum, Universität Stuttgart, Germany
Alex Shafarenko	University of Hertfordshire, UK
Yuzhong Sun	Institute of Computing Technology, CAS, China
Peiyi Tang	University of Arkansas at Little Rock, USA
David Taniar	Monash University, Australia
Ruppa K. Thulasiram	University of Manitoba, Canada
Xinmin Tian	Intel, USA
Lorenzo Verdoscia	ICAR, Italian National Research Council (CNR), Italy
Frederic Vivien	INRIA, France
Guojung Wang	Hong Kong Polytechnic University, China
Xingwei Wang	Northeastern University, China
Allan Wong	Hong Kong Polytechnic University, China
Chengyong Wu	Chinese Academy of Sciences, China
Bin Xiao	Hong Kong Polytechnic University, China
Nong Xiao	National University of Defense Technology, China
Cheng-Zhong Xu	Wayne State University, USA
Dongyan Xu	Purdue University, USA
Jianliang Xu	Hong Kong Baptist University, China
Xinfeng Ye	Auckland University, New Zealand

Kun-Ming Yu	Chung Hua University, Taiwan
Jun Zhang	University of Kentucky, USA
Yao Zheng	Zhejiang University, China
Bingbing Zhou	University of Sydney, Australia
Wanlei Zhou	Deakin University, Australia
Xiaobo Zhou	University of Colorado at Colorado Springs, USA
Jianping Zhu	University of Akron, USA
A.Y. Zomaya	University of Sydney, Australia

Table of Contents

Keynote Speech

Data Structures and Algorithms for Packet Forwarding and Classification

Sartaj Sahni 1

Using Speculative Multithreading for General-Purpose Applications

Pen-Chung Yew 2

Towards Peta-Bit Photonic Networks

Susumu Horiguchi 3

Tutorial

Technologies and Considerations for Developing Internet and Multiplayer Computer Games: A Tutorial (Extended Abstract)

Wanlei Zhou 17

Routing in 2-D Meshes: A Tutorial (Extended Abstract)

Zhen Jiang 19

Session 1A: Cluster Systems and Applications

RDIM: A Self-adaptive and Balanced Distribution for Replicated Data in Scalable Storage Clusters

Zhong Liu, Nong Xiao, Xing-Ming Zhou 21

Modeling and Analysis of a Parallel Nested Loop Join on Cluster Architectures

Erich Schikuta 33

Scheduling Efficiently for Irregular Load Distributions in a Large-scale Cluster

Bao-Yin Zhang, Ze-Yao Mo, Guang-Wen Yang, Wei-Min Zheng 39

A Content-Based Load Balancing Algorithm for Metadata Servers in Cluster File Systems

Junho Jang, Saeyoung Han, Sungyong Park, Jihoon Yang 49

Reducing the Overhead of Intra-Node Communication in Clusters of SMPs
Sascha Hunold, Thomas Rauber 58

Session 1B: Performance Evaluation and Measurements

On Service-Oriented Network Measurement Architecture with Mobile Agent
Zhi Wang, Bo Yu, Chuanshan Gao 66

Pathtrait: A Tool for Tight Link Location and End-to-End Available Bandwidth Measurement
Dalu Zhang, Ye Wu, Jian Xu 78

Performance Evaluation of a Self-organized Hierarchical Topology for Update of Replicas in a Large Distributed System
Jesús Acosta-Elias, B. Pineda Reyes, E. Chavez Leos, Alejandro Ochoa-Cardiel, Mario Recio, Omar Gutierrez-Navarro 90

A Proposal of Reconfigurable MPI Collective Communication Functions
Luiz E.S. Ramos, Carlos A.P.S. Martins 102

Session 1C: Distributed Algorithms and Systems

Design and Evaluation of Network-Bandwidth-Based Parallel Replication Algorithm
Yijie Wang, Yongjin Qin 108

A Quorum Based Group k -Mutual Exclusion Algorithm for Open Distributed Environments
Armin Lawi, Kentaro Oda, Takaichi Yoshida 119

An Efficient Implementation of the Backtesting of Trading Strategies
Jiarui Ni, Chengqi Zhang 126

Reconfigurable Object Consistency Model for Distributed Shared Memory
Christiane V. Pousa, Luís F.W. Góes, Carlos A.P.S. Martins 132

Session 1D: Fault Tolerance and Reliability

ER-TCP: An Efficient Fault-Tolerance Scheme for TCP Connections
Zhiyuan Shao, Hai Jin, Bin Cheng, Wenbin Jiang 139

Online Adaptive Fault-Tolerant Routing in 2D Torus <i>Yamin Li, Shietung Peng, Wanming Chu</i>	150
Replicating Multithreaded Web Services <i>Xinfeng Ye, Yilin Shen</i>	162
Design Schemes and Performance Analysis of Dynamic Rerouting Interconnection Networks for Tolerating Faults and Preventing Collisions <i>Ching-Wen Chen, Chang-Jung Ku, Chih-Hung Chang</i>	168
RRBS: A Fault Tolerance Model for Cluster/Grid Parallel File System <i>Yan-mei Huo, Jiu-bin Ju, Liang Hu</i>	180

Session 2A: High-Performance Computing and Architecture I

Fast Parallel FFT on CTaiJi: A Coarse-Grained Reconfigurable Computation Platform <i>LiGuo Song, YuXian Jiang</i>	188
Integrating Local Job Scheduler – LSF TM with Gfarm TM <i>Xiaohui Wei, Wilfred W. Li, Osamu Tatebe, Gaochao Xu, Liang Hu, Jiubin Ju</i>	196
Cache Management for Discrete Processor Architectures <i>Jih-Fu Tu</i>	205
Enhancing DCache Warn Fetch Policy for SMT Processors <i>Minxuan Zhang, Caixia Sun</i>	216
Aggressive Loop Fusion for Improving Locality and Parallelism <i>Jingling Xue</i>	224

Session 2B: Parallel Algorithms and Systems I

An Upper Bound on Blocking Probability of Vertical Stacked Optical Benes Networks <i>Jiling Zhong, Yi Pan</i>	239
It's Elementary, My Dear Watson: Time-Optimal Sorting Algorithms on a Completely Overlapping Network <i>Sanpawat Kantabutra, Wattana Jindaluang, Prapaporn Techa-angkoorn</i>	252

Lock-Free Parallel Garbage Collection
H. Gao, J.F. Groote, W.H. Hesselink 263

Adaptive Parallel Ant Colony Optimization
Ling Chen, Chunfang Zhang 275

Collective Communications for Scalable Programming
Sang Boem Lim, Bryan Carpenter, Geoffrey Fox, Han-Ku Lee 286

Session 2C: Network Routing and Communication Algorithms I

A Fast and Scalable Conflict Detection Algorithm for Packet Classifiers
Xin Li, Zhenzhou Ji, Mingzeng Hu 298

Loss Rate Aware Preferential Treatment Scheme at the Congested Router
Dongping Zhao, Deyun Zhang, Jiuxing Cao, Weibin Zheng, Zhiping An 308

A Heuristic Routing Algorithm for Degree-Constrained Minimum Overall Latency Application Layer Multicast
Baoliu Ye, Minyi Guo, Daoxu Chen, Sanglu Lu 320

DIRA: Distributed Insertion and Relocation Routing Algorithm for Overlay Multicast in Diffserv Domain
Xiao Chen, Huagang Shao, Weinong Wang 333

Load Balancing Based on Similarity Multi-paths Routing
Wuping Xu, Puli Yan, Delin Xia, Ming Wu 345

Session 2D: Security Algorithms and Systems I

Secure Real-Time Transaction Processing with Timeliness Guarantees in Mobile Distributed Real-Time Database Systems
Yingyuan Xiao, Yunsheng Liu, Guoqiong Liao, Xiaofeng Liu 358

A New Data Fusion Model of Intrusion Detection-IDSFP
Junfeng Tian, Weidong Zhao, Ruizhong Du, Zhe Zhang 371

The Application of Collaborative Filtering for Trust Management in P2P Communities
Min Zuo, Kai Wang, Jianhua Li 383

Intelligent DDoS Packet Filtering in High-Speed Networks <i>Yang Xiang, Wanlei Zhou</i>	395
--	-----

Session 3A: High-Performance Computing and Architecture II

2L-MuRR: A Compact Register Renaming Scheme for SMT Processors <i>Hua Yang, Gang Cui, Xiao-zong Yang</i>	407
Scheduling Convex Bipartite Communications Toward Efficient GEN_BLOCK Transformations <i>Ching-Hsien Hsu, Shih-Chang Chen, Chao-Yang Lan, Chao-Tung Yang, Kuan-Ching Li</i>	419
A Chronological History-Based Execution Time Estimation Model for Embarrassingly Parallel Applications on Grids <i>Chao-Tung Yang, Po-Chi Shih, Cheng-Fang Lin, Ching-Hsien Hsu, Kuan-Ching Li</i>	425
Developing High-Performance Parallel Applications Using EPAS <i>Mohammad Mursalin Akon, Ajit Singh, Xuemin (Sherman) Shen, Dhrubajyoti Goswami, Hon Fung Li</i>	431
On Utilization of the Grid Computing Technology for Video Conversion and 3D Rendering <i>Chao-Tung Yang, Chuan-Lin Lai, Kuan-Ching Li, Ching-Hsien Hsu, William C. Chu</i>	442

Session 3B: Parallel Algorithms and Systems II

Communication-Free Data Alignment for Arrays with Exponential References Using Elementary Linear Algebra <i>Weng-Long Chang, Minyi Guo, Michael (Shan-Hui) Ho, Sien-Tang Tsai</i>	454
Parallel Unstructured Quadrilateral Mesh Generation <i>Jianjun Chen, Yao Zheng</i>	467
Container Problem in Burnt Pancake Graphs <i>N. Sawada, Y. Suzuki, K. Kaneko</i>	479
A Cost Optimal Parallel Quicksorting and Its Implementation on a Shared Memory Parallel Computer <i>Jie Liu, Clinton Knowles, Adam Brian Davis</i>	491

Session 3C: Network Routing and Communication Algorithms II

Near Optimal Routing in a Small-World Network with Augmented Local Awareness
Jianyang Zeng, Wen-Jing Hsu, Jiangdian Wang 503

Systolic Routing in an Optical Fat Tree
Risto T. Honkanen 514

Fast Total-Exchange Algorithm
Anssi Kautonen 524

MFLWQ: A Fair and Adaptive Queue Management Algorithm for Scavenger Service
Xiaofeng Chen, Lingdi Ping, Zheng Wan, Jian Chen 530

Session 3D: Security Algorithms and Systems II

CBTM: A Trust Model with Uncertainty Quantification and Reasoning for Pervasive Computing
Rui He, Jianwei Niu, Guangwei Zhang 541

An Authentication Protocol for Pervasive Computing
Shiqun Li, Jianying Zhou, Xiangxue Li, Kefei Chen 553

A Hybrid Neural Network Approach to the Classification of Novel Attacks for Intrusion Detection
Wei Pan, Weihua Li 564

Efficient and Beneficial Defense Against DDoS Direct Attack and Reflector Attack
Yanxiang He, Wei Chen, Wenling Peng, Min Yang 576

Session 4A: Grid Applications and Systems

Study on Equipment Interoperation Chain Model in Grid Environment
Yuexuan Wang, Cheng Wu 588

Grid Accounting Information Service with End-to-End User Identity
Beob Kyun Kim, Haeng Jin Jang, Tingting Li, Dong Un An, Seung Jong Chung 596

Performance Analysis and Prediction on VEGA Grid <i>Haijun Yang, Zhiwei Xu, Yuzhong Sun, Zheng Shen, Changshu Liu</i>	608
--	-----

An Accounting Services Model for ShanghaiGrid <i> Jiadi Yu, Qi Qian, Minglu Li</i>	620
---	-----

An Agent-Based Grid Computing Infrastructure <i>Jia Tang, Minjie Zhang</i>	630
---	-----

Session 4B: Database Applications and Data Mining

Dynamically Mining Frequent Patterns over Online Data Streams <i>Xuejun Liu, Hongbing Xu, Yisheng Dong, Yongli Wang, Jiangbo Qian</i>	645
--	-----

Clustering Mixed Type Attributes in Large Dataset <i>Jian Yin, Zhifang Tan</i>	655
---	-----

Mining Association Rules from Multi-stream Time Series Data on Multiprocessor Systems <i>Biplab Kumer Sarker, Toshiya Hirata, Kuniaki Uehara, Virendra C. Bhavsar</i>	662
---	-----

Mining Frequent Closed Itemsets Without Candidate Generation <i>Kai Chen</i>	668
---	-----

Distribution Design in Distributed Databases Using Clustering to Solve Large Instances <i>Joaquin Perez Ortega, Rodolfo A. Pazos Rangel, Jose A. Martinez Florez, J. Javier Gonzalez Barbosa, E. Alejandro Macias Diaz, J. David Teran Villanueva</i>	678
---	-----

Session 4C: Distributed Processing and Architecture

Modeling Real-Time Wormhole Networks by Queuing Theory <i>Lichen Zhang, Yuliang Zhang</i>	690
--	-----

A Discrete Event System Model for Simulating Mobile Agent <i>Xuhui Li, Jiannong Cao, Yanxiang He, Jingyang Zhou</i>	701
--	-----

A Holistic Approach to Survivable Distributed Information System for Critical Applications <i>H.Q. Wang, D.X. Liu, D. Xu, Y.Y. Lan, X.Y. Li, Q. Zhao</i>	713
--	-----

A Personalized and Scalable Service Broker for the Global Computing Environment
Kyung-Lang Park, Chang-Soon Kim, Oh-Young Kwon, Hyoung-Woo Park, Shin-Dug Kim 725

Distributed Network Computing on Transient Stability Analysis and Control
Chenrong Huang, Mingxue Chen 737

Session 4D: Sensor Networks and Protocols

A Distributed Power-Efficient Data Gathering and Aggregation Protocol for Wireless Sensor Networks
Ming Liu, Jiannong Cao, Hai-gang Gong, Li-jun Chen, Xie Li 743

A Key Management Scheme for Cross-Layering Designs in Wireless Sensor Networks
Bo Yu, Haiguang Chen, Min Yang, Dilin Mao, Chuanshan Gao..... 757

A Clustering Mechanism with Various Cluster Sizes for the Sensor Network
Yujin Lim, Sanghyun Ahn 769

Percentage Coverage Configuration in Wireless Sensor Networks
Hongxing Bai, Xi Chen, Yu-Chi Ho, Xiaohong Guan 780

Session 5A: Peer-to-Peer Algorithms and Systems I

A Fault-Tolerant Content Addressable Network
Daisuke Takemoto, Shigeaki Tagashira, Satoshi Fujita 792

Effective Resource Allocation in a JXTA-Based Grid Computing Platform JXTPIA
Kenichi Sumitomo, Takato Izaiku, Yoshihiro Saitoh, Hui Wang, Mingyi Guo, Jie Huang..... 804

A Generic Approach to Make Structured Peer-to-Peer Systems Topology-Aware
Tongqing Qiu, Fan Wu, Guihai Chen..... 816

A Workflow Management Mechanism for Peer-to-Peer Computing Platforms
Hong Wang, Hiroyuki Takizawa, Hiroaki Kobayashi 827

Session 5B: Internet Computing and Web Technologies I

DDSQP: A WSRF-Based Distributed Data Stream Query System <i>Jia-jin Le, Jian-wei Liu</i>	833
Quantitative Analysis of Zipf's Law on Web Cache <i>Lei Shi, Zhimin Gu, Lin Wei, Yun Shi</i>	845
An Adaptive Web Caching Method Based on the Heterogeneity of Web Object <i>Yun Ji Na, Il Seok Ko, Gun Heui Han</i>	853
Supporting Wireless Web Page Access in Mobile Environments Using Mobile Agents <i>HaiYang Hu, JiDong Ge, Ping Lu, XianPing Tao, Jian Lu</i>	859

Session 5C: Network Protocols and Switching I

TCP and ICMP in Network Measurement: An Experimental Evaluation <i>Wenwei Li, Dafang Zhang, Gaogang Xie, Jinmin Yang</i>	870
Fuzzy Congestion Avoidance in Communication Networks <i>F. Habibipour, M. Khajepour, M. Galily</i>	882
A New Method of Network Data Link Troubleshooting <i>Qian-Mu Li, Yong Qi, Man-Wu Xu, Feng-Yu Liu</i>	890
Ethernet as a Lossless Deadlock Free System Area Network <i>Sven-Arne Reinemo, Tor Skeie</i>	901

Session 5D: Ad Hoc and Wireless Networks I

An Anycast-Based Geocasting Protocol for Mobile Ad Hoc Networks <i>Jipeng Zhou</i>	915
A Mesh Based Anycast Routing Protocol for Ad Hoc Networks <i>Shui Yu, Wanlei Zhou</i>	927
Research of Power-aware Dynamic Adaptive Replica Allocation Algorithm in Mobile Ad Hoc Networks <i>Yijie Wang, Kan Yang</i>	933

GCPM: A Model for Efficient Call Admission Control in Wireless Cellular Networks
Lanlan Cong, Beihong Jin, Donglei Cao, Jiannong Cao 945

Session 6A: Peer-to-Peer Algorithms and Systems II

Cross-Layer Flow Control Based on Path Capacity Prediction for Multi-hop Ad Hoc Network
Yongqiang Liu, Wei Yan, Yafei Dai 955

Constructing the Robust and Efficient Small World Overlay Network for P2P Systems
Guofu Feng, Ying-chi Mao, Dao-xu Chen 966

Transparent Java Threads Migration Protocol over Peer2Peer
Edgardo Ambrosi, Marco Bianchi, Carlo Gaibisso, Giorgio Gambosi, Flavio Lombardi 972

Analytic Performance Modeling of a Fully Adaptive Routing Algorithm in the Torus
Mostafa Rezazad, Hamid Sarbazi-azad 984

Redundancy Schemes for High Availability in DHTs
Fan Wu, Tongqing Qiu, Yuequan Chen, Guihai Chen 990

VIP: A P2P Communication Platform for NAT Traversal
Xugang Wang, Qianni Deng 1001

Session 6B: Internet Computing and Web Technologies II

Hyper-Erlang Based Model for Network Traffic Approximation
Junfeng Wang, Hongxia Zhou, Fanjiang Xu, Lei Li 1012

Prediction-Based Multicast Mobility Management in Mobile Internet
Guojun Wang, Zhongshan Gao, Lifan Zhang, Jiannong Cao 1024

A Rule-Based Workflow Approach for Service Composition
Lin Chen, Minglu Li, Jian Cao 1036

Manage Distributed Ontologies on the Semantic Web
Peng Wang, Baowen Xu, Jianjiang Lu, Dazhou Kang, Yanhui Li 1047

Session 6C: Network Protocols and Switching II

Next Generation Networks Architecture and Layered End-to-End QoS Control

Weijia Jia, Bo Han, Ji Shen, Haohuan Fu 1055

FairOM: Enforcing Proportional Contributions among Peers in Internet-Scale Distributed Systems

Yijun Lu, Hong Jiang, Dan Feng 1065

An Efficient QoS Framework with Distributed Adaptive Resource Management in IPv6 Networks

Huagang Shao, Weinong Wang, Rui Xie, Xiao Chen 1077

Scheduling Latency Insensitive Computer Vision Tasks

Richard Y.D. Xu, Jesse S. Jin 1089

Session 6D: Ad Hoc and Wireless Networks II

Throughput Analysis for Fully-Connected Ad Hoc Network with Multiuser Detection

Xiaocong Qian, Baoyu Zheng, Genjian Yu 1101

Dynamic Traffic Grooming for Survivable Mobile Networks - Fairness Control

Hyuncheol Kim, Sunghae Kim, Seongjin Ahn 1113

An Efficient Cache Access Protocol in a Mobile Computing Environment

Jae-Ho Choi, SangKeun Lee 1123

Implementation and Performance Study of Route Caching Mechanisms in DSR and HER Routing Algorithms for MANET

K. Murugan, Sivasankar, Balaji, S. Shanmugavel 1135

An Effective Cluster-Based Slot Allocation Mechanism in Ad Hoc Networks

Tsung-Chuan Huang, Chin-Yi Yao 1146

Author Index 1159