

Lecture Notes in Computer Science

2346

Edited by G. Goos, J. Hartmanis, and J. van Leeuwen

Springer

Berlin

Heidelberg

New York

Barcelona

Hong Kong

London

Milan

Paris

Tokyo

Herwig Unger Thomas Böhme
Armin Mikler (Eds.)

Innovative Internet Computing Systems

Second International Workshop, IICS 2002
Kühlungsborn, Germany, June 20-22, 2002
Proceedings



Springer

Series Editors

Gerhard Goos, Karlsruhe University, Germany
Juris Hartmanis, Cornell University, NY, USA
Jan van Leeuwen, Utrecht University, The Netherlands

Volume Editors

Herwig Unger
Universität Rostock, FB Informatik
18051 Rostock, Germany
E-mail: hunger@informatik.uni-rostock.de

Thomas Böhme
TU Ilmenau, Institut für Mathematik
Postfach 10 05 65, 98684 Ilmenau, Germany
E-mail: tboehme@theoinfo.tu-ilmenau.de

Armin Mikler
University of North Texas
College of Art and Sciences, Department of Computer Science
76203 Denton, TX, USA
E-mail: mikler@cs.unt.edu

Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Innovative internet computing systems : second international workshop ;
proceedings / IICS 2002, Kühlungsborn, Germany, June 20 - 22, 2002. Herwig
Unger ... (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Hong Kong ;
London ; Milan ; Paris ; Tokyo : Springer, 2002
(Lecture notes in computer science ; Vol. 2346)
ISBN 3-540-43790-8

CR Subject Classification (1998): C.2, D.2, F.3, H.3-4, I.2.11, K.4.3-4

ISSN 0302-9743

ISBN 3-540-43790-8 Springer-Verlag 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-Verlag. Violations are liable for prosecution under the German Copyright Law.

Springer-Verlag Berlin Heidelberg New York
a member of BertelsmannSpringer Science+Business Media GmbH

<http://www.springer.de>

© Springer-Verlag Berlin Heidelberg 2002
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Christian Grosche, Hamburg
Printed on acid-free paper SPIN 10869985 06/3142 5 4 3 2 1 0

Preface

I²CS 2002 was the second workshop on Innovative Internet Computing Systems, a series of international workshops on system and information management for the Next Generation Internet (NGI). The workshop series commenced with I²CS 2001, which was held at the Technical University of Ilmenau. It brought together scientists whose research addressed different aspects of Internet-based and network-centric computing. This year's workshop was held in the inspiring atmosphere of the old Baltic Sea resort of Kühlungborn near Rostock (Germany).

The unprecedented pervasiveness of network access and the associated emergence of large distributed computing infrastructures have presented researchers with new challenges in Information and Web technology. The management and retrieval of web-based information, the classification of contents, and the management of web-based communities are some of the key areas addressed by some of this year's contributions. Other papers focus on the structure and retrieval of information from large distributed data bases as well as the representation of the distributed nature of information by the means of graph-theoretical models.

Like I²CS 2001, this year's workshop was organized by the Gesellschaft für Informatik (GI) in Germany to support the exchange of experiences, results, and technology in the field. The 21 papers (2 invited, 19 regular contributions) presented at the conference and in the present volume were selected from more than 30 submissions. Every submission was carefully reviewed by three members of the program committee.

We would like to thank all those who contributed to this book for their excellent work and their great cooperation. Roswitha Fengler and Katrin Erdmann deserve special gratitude for their great efforts and perfect work concerning all administrative matters of the workshop. We wish to acknowledge the substantial help provided by our sponsors: the University of Rostock and the TTK Techniker Krankenkasse Rostock.

We hope all participants enjoyed a successful workshop, made a lot of new contacts, held fruitful discussions helping to solve the actual research problems, and had a pleasant stay on the coast of the Baltic Sea. Last but not least we hope to see you again at the third *I²CS* conference in 2003, which will be held in the Leipzig area in the heart of Germany.

June 2002

Herwig Unger (Chair)
Thomas Böhme (Co-chair)
Armin R. Mikler

Organization

I²CS was organized by the Gesellschaft für Informatik (GI) in Germany.

Executive Committee

Roswitha Fengler
Katrín Erdmann

Steering Committee

Herwig Unger (Chair)
Thomas Böhme (Co-chair)
Armin R. Mikler

Program Committee

A. Brandstädt	G. Hipper	A. Pears
J. Brooke	N. Kalyaniwalla	M.A.R. Dantas
M. Bui	K. Kleese	D. Reschke
N. Deo	N. Krier	A. Ryjov
M. Dietzfelbinger	P. Kropf	M. Sommer
W. Fengler	M. Kunde	D. Tavangarian
T. Haupt	R. Liskowsky	D. Tutsch
G. Heyer	S. Lukosch	T. Ungerer

Sponsoring Institutions

University of Rostock
TKK Techniker Krankenkasse

Table of Contents

Workshop Innovative Internet Computing Systems

Living Hypertext - Web Retrieval Techniques for Traditional Database-Centric Information	1
<i>Ralf-Dieter Schimkat, Wolfgang Kuchlin (Universität Tübingen), Frank Nestel (INA-Schaeffler KG)</i>	
Automatic Analysis of Large Text Corpora - A Contribution to Structuring WEB Communities	15
<i>Gerhard Heyer, Uwe Quasthoff, Christian Wolff (Universität Leipzig)</i>	
A Data Mining Architecture for Distributed Environments	27
<i>Mafruz Zaman Ashrafi, David Taniar, Kate Smith (Monash University)</i>	
Collaborative Highlighting for Real-Time Group Editors	39
<i>Haifeng Shen, Chengzheng Sun (Griffith University)</i>	
Extending the Modeling Efficiency of the UML Activity Diagram for the Design of Distributed Systems.....	51
<i>Olga Fengler, Wolfgang Fengler, Veselka Duridanova (Technical University Ilmenau)</i>	
An XML Knowledge Base System for Scheduling Problems	63
<i>Leonilde Rocha Varela (University of Minho), Joaquim Nunes Aparício (New University of Lisbon), Sílvia Carmo Silva (University of Minho)</i>	
Compressibility as a Measure of Local Coherence in Web Graphs.....	75
<i>Jeannette C.M. Janssen, Nauzer Kalyaniwalla (Dalhousie University)</i>	
On the Spectrum and Structure of Internet Topology Graphs	83
<i>Danica Vukadinović, Polly Huang, Thomas Erlebach (ETH Zurich)</i>	
Characterizing the Citation Graph as a Self-Organizing Networked Information Space	97
<i>Yuan An, Jeannette C.M. Janssen, Evangelos E. Milios (Dalhousie University)</i>	
Characterization and Management of Dynamical Behavior in a System with Mobile Components	109
<i>Christian Erfurth, Wilhelm Rossak (Friedrich Schiller Universität Jena)</i>	

Ergotracer: An Internet User Behaviour Tracer	121
<i>Carlos Gregorio Rodríguez (Universidad Complutense de Madrid), Pedro Palao Gostanza (Bankinter)</i>	
A Friendly Peer-to-Peer File Sharing System with Profit but without Copy Protection	133
<i>Rüdiger Grimm, Jürgen Nützel (TU Ilmenau)</i>	
A Decentral Library for Scientific Articles	143
<i>Markus Wulff (University of Rostock)</i>	
Optimisation of Distributed Communities Using Cooperative Strategies . .	153
<i>Saiho Yuen, Peter Kropf (Université de Montréal), Gilbert Babin (HEC Montréal)</i>	
Proven IP Network Services: From End-User to Router and vice versa . .	169
<i>Gerald Eichler, Ralf Widera (T-Systems Nova), Anne Thomas (TU Dresden)</i>	
Mobility Support for Replicated Real-Time Applications	181
<i>Jörg Roth (University of Hagen)</i>	
Empirical Study of VBR Traffic Smoothing in Wireless Environment . . .	193
<i>Youjip Won, Bowie Shim (Hanyang University)</i>	
Compiling Rule-Based Agents for Distributed Databases	205
<i>K.W. Ko, I.T. Kim, S.B. Yoo, K.C. Kim, S.D. Kim, J.S. Kim (Inha University), Y.S. Lee (Yonsei University)</i>	
A Formal Framework for E-Barter Based on Microeconomic Theory and Process Algebras	217
<i>Natalia López, Manuel Núñez, Ismael Rodríguez, Fernando Rubio (Universidad Complutense de Madrid)</i>	
Invited Talk	
Peer-to-Peer beyond File Sharing	229
<i>Ulrike Lechner (University of Bremen)</i>	
Author Index	251