## Table of Contents

### COOPIS 2002 FULL PAPERS

#### Interoperability

Developing Evolutionary Cost Models for Query Optimization in a Dynamic Multidatabase Environment ........................................ 1
*Amira Rahal, Qiang Zhu, Per-Åke Larson*

A Conceptual Markup Language That Supports Interoperability between Business Rule Modeling Systems ............................ 19
*Jan Demey, Mustafa Jarrar, Robert Meersman*

Distributed Description Logics: Directed Domain Correspondences in Federated Information Sources .......................... 36
*Alex Borgida, Luciano Serafini*

#### Workflow

Synchronization of Concurrent Workflows Using Interaction Expressions and Coordination Protocols ............................ 54
*Christian Heinlein*

CPM Revisited – An Architecture Comparison .......................... 72
*Qiming Chen, Meichun Hsu*

Modeling Coordination and Control in Cross-Organizational Workflows .......................... 91
*Enzo Colombo, Chiara Francalanci, Barbara Pernici*

#### Mobility

View Propagation and Inconsistency Detection for Cooperative Mobile Agents ..................................................... 107
*Susan Weissman Lauzac, Panos K. Chrysanthis*

On Real-Time Top k Querying for Mobile Services ...................... 125
*Wolf-Tilo Balke, Ulrich Güntzer, Werner Kießling*

Mobile Agents in Mobile Data Access Systems ......................... 144
*Yu Jiao, Ali R. Hurson*
Agents

Using Agent Control and Communication in a Distributed Workflow Information System .................................................. 163
   M. Brian Blake

An Extended Alternating-Offers Bargaining Protocol for Automated Negotiation in Multi-agent Systems ...................... 179
   Pinata Winoto, Gordon McCalla, Julita Vassileva

A Human Based Perception Model for Cooperative Intelligent Virtual Agents ............................................................ 195
   Pilar Herrero, Angélica de Antonio

P2P & Ubiquitous

A Decentralized Algorithm for Coordinating Independent Peers: An Initial Examination .................................................... 213
   Girish Suryanarayana, Richard Taylor

Supporting Peer-to-Peer User Communities ........................................ 230
   Julita Vassileva

Context Spaces – Self-Structuring Distributed Networks for Contextual Messaging and Resource Discovery .................. 248
   Dominic Heutelbeck

Work Process

Supporting Cooperative Learning in Distributed Project Teams ......... 266
   Weigang Wang, Jörg M. Haake, Martin Wessner

Discovering Emergent Virtual Work Processes in Collaborative Systems .... 286
   Simeon J. Simoff, Robert P. Biuk-Aghai

Flexible Merging for Asynchronous Collaborative Systems ............ 304
   Haifeng Shen, Chengzheng Sun

Business & Transactions

A Multi-version Transaction Model to Improve Data Availability in Mobile Computing ....................................................... 322
   Sanjay Kumar Madria, Mohammed Baseer, Sourav S. Bhownick

Finding Trading Partners to Establish Ad-hoc Business Processes ........................................... 339
   Andreas Wombacher, Bendick Mahleko
Regulating Work in Digital Enterprises: A Flexible Managerial Framework ........................................................ 356
Takahiro Murata, Naftaly H. Minsky

Infrastructure
Collecting and Querying Distributed Traces of Composite Service Executions ........................................................ 373
Marie-Christine Fauvet, Marlon Dumas, Boualem Benatallah
An Architecture of a Web-Based Collaborative Image Search Engine ........................................................ 391
Wei-Cheng Lai, Gerard Sychay, Edward Chang
Parallel Processing with Autonomous Databases in a Cluster System ........................................................ 410
Stéphane Gançarski, Hubert Naacke, Esther Pacitti, Patrick Valduriez

Query Processing
Querying XML Sources Using an Ontology-Based Mediator ......................... 429
Bernd Amann, Catriel Beeri, Irini Fundulaki, Michel Scholl
Handling Partial Matches in Semistructured Data with Cooperative Query Answering Techniques ............................ 449
Antonio Badia, Sanjay Kumar Madria
Efficient Querying of Distributed Resources in Mediator Systems ................ 468
Ioana Manolescu, Luc Bouganim, Françoise Fabret, Eric Simon

Quality Issues
Managing Data Quality in Cooperative Information Systems ...................... 486
Massimo Mecella, Monica Scannapieco, Antonino Virgillito, Roberto Baldoni, Tiziana Catarci, Carlo Batini
Adaptive Fault Tolerant Hospital Resource Scheduling ............................ 503
Umesh Deshpande, Arobinda Gupta, Anupam Basu

COOPIS 2002 POSTERS

Agents & Middlewares
Mining ‘Living’ Data – Providing Context Information to a Negotiation Process ........................................................ 521
Simeon J. Simoff
The Neem Platform: An Evolvable Framework for Perceptual Collaborative Applications ........................................ 522
P. Barthelmes, C.A. Ellis
A Model for Process Service Interaction ................................. 524
   Karim Baïna, Samir Tata, Khalid Benali

Cooperative Systems

Leveraging Dynamic Inheritance in Complex Ontology Representation . . . 525
   Hasan M. Jamil, Giovanni A. Modica

A Database Approach to Global Document Spaces: Replacing Files
with Shared, Connected Objects ............................................. 526
   G. Rivera, M.C. Norrie

PROLOG/RDBMS Integration in the NED Intelligent
Information System ............................................................... 528
   F. Maier, D. Nute, W.D. Potter, J. Wang, M. Twery, H.M. Rauscher,
   P. Knopp, S. Thomasma, M. Dass, H. Uchiyama

New Location Management for Reducing HLR Overhead Traffic in
Mobile Networks ............................................................... 529
   Dong Chun Lee, Hyun Cheul Shin, Jeom Goo Kim

DOA 2002 FULL PAPERS

ORB Enhancements

A Filter Object Framework for MICO ...................................... 531
   Pranav S. Nabar, Amit L. Padalkar, Rushikesh K. Joshi

Design and Performance of a Modular Portable Object Adapter
for Distributed, Real-Time, and Embedded CORBA Applications ...... 549
   Raymond Klefstad, Arvind S. Krishna, Douglas C. Schmidt

Design and Performance of Asynchronous Method
Handling for CORBA ............................................................ 568
   Mayur Deshpande, Douglas C. Schmidt, Carlos O’Ryan,
   Darrell Brunsch

Web Services

Web Services Interoperability: A Practitioner’s Experience .............. 587
   Pradyumna Siddhartha, Shubhashis Sengupta

Cooking the Web-ERP ........................................................... 602
   Michael Gillmann, Joachim Hertel, Christoph G. Jung,
   Günther Kaufmann, Michael Wolber

Web Services and CORBA ........................................................ 618
   Seán Baker
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composing and Deploying Grid Middleware Web Services Using Model Driven Architecture</td>
<td>633</td>
</tr>
<tr>
<td>Aniruddha Gokhale, Balachandran Natarajan</td>
<td></td>
</tr>
<tr>
<td>Distributed Object Scalability and Heterogeneity</td>
<td></td>
</tr>
<tr>
<td>A Design Pattern for Efficient Retrieval of Large Data Sets from Remote Data Sources</td>
<td>650</td>
</tr>
<tr>
<td>Brad Long</td>
<td></td>
</tr>
<tr>
<td>Replacement Policies for a Distributed Object Caching Service</td>
<td>661</td>
</tr>
<tr>
<td>Hilla Atzmon, Roy Friedman, Roman Vitenberg</td>
<td></td>
</tr>
<tr>
<td>Design and Performance of a Media Gateway Trader</td>
<td>675</td>
</tr>
<tr>
<td>Hans Ole Rafaelsen, Frank Eliassen</td>
<td></td>
</tr>
<tr>
<td>Dependability, Security, Assurance</td>
<td></td>
</tr>
<tr>
<td>Object Security Attributes: Enabling Application-Specific Access Control in Middleware</td>
<td>693</td>
</tr>
<tr>
<td>Konstantin Beznosov</td>
<td></td>
</tr>
<tr>
<td>Integrating Optimistic Virtual Synchrony to a CORBA Object Group Service</td>
<td>711</td>
</tr>
<tr>
<td>Gláucia de Oliveira Dias, Alba Cristina Magalhaes Alves de Melo</td>
<td></td>
</tr>
<tr>
<td>Implementing a CORBA-Based Architecture for Leveraging the Security Level of Existing Applications</td>
<td>723</td>
</tr>
<tr>
<td>D. Cotroneo, A. Mazzeo, L. Romano, S. Russo</td>
<td></td>
</tr>
<tr>
<td>Reconciling Replication and Transactions for the End-to-End Reliability of CORBA Applications</td>
<td>737</td>
</tr>
<tr>
<td>Pascal Felber, Priya Narasimhan</td>
<td></td>
</tr>
<tr>
<td>Reflection and Reconfiguration</td>
<td></td>
</tr>
<tr>
<td>Runtime Performance Modeling and Measurement of Adaptive Distributed Object Applications</td>
<td>755</td>
</tr>
<tr>
<td>John Zinky, Joseph Loyall, Richard Shapiro</td>
<td></td>
</tr>
<tr>
<td>An Infrastructure for Adaptable Middleware</td>
<td>773</td>
</tr>
<tr>
<td>Pierre-Charles David, Thomas Ledoux</td>
<td></td>
</tr>
<tr>
<td>A Reflective Middleware Framework for Communication in Dynamic Environments</td>
<td>791</td>
</tr>
<tr>
<td>Sebastian Gutierrez-Nolasco, Nalini Venkatasubramanian</td>
<td></td>
</tr>
</tbody>
</table>
## Mobility

A Dynamic Proxy Based Architecture to Support Distributed Java Objects in a Mobile Environment .......................................................... 809  
**Gregory Biegel, Vinny Cahill, Mads Haahr**

A CORBA-Based Workflow Management System for Wireless Communication Environments .......................................................... 827  
**Leonardo Hartleben Reinehr, Maria Beatriz Felgar de Toledo**

Customizable Deployment, Composition, and Hosting of Distributed Java Applications .......................................................... 845  
**Stefan Paal, Reiner Kammüller, Bernd Freisleben**

Resource Discovery for Pervasive Environments ............................................. 866  
**Andry Rakotonirainy, Greg Groves**

## Real-Time Scheduling and Performance

An Adaptive Scheduling Service for Real-Time CORBA ........................... 884  
**Alexandre Cervieri, Rômulo Silva de Oliveira, Cláudio F. Resin Geyer**

The Design and Performance of the jRate Real-Time Java Implementation .......................................................... 900  
**Angelo Corsaro, Douglas C. Schmidt**

Empirical Differences between COTS Middleware Scheduling Strategies .......................................................... 922  
**Christopher D. Gill, Fred Kuhns, Douglas C. Schmidt, Ron K. Cytron**

## Component Based Applications

Adding Business Rules and Constraints in Component Based Applications .......................................................... 948  
**Antonio Coronato, Marco Cinquegrani, Giuseppe De Pietro**

Configuring the Communication Middleware to Support Multi-user Object-Oriented Environments .......................................................... 965  
**Sandra Teixeira, Pedro Vicente, Alexandre Pinto, Hugo Miranda, Luis Rodrigues, Jorge Martins, António Rito-Silva**

Distributed Component System Based on Architecture Description: The SOFA Experience .......................................................... 981  
**Tomáš Kalibera, Petr Tůma**

On Components with Explicit Protocols Satisfying a Notion of Correctness by Construction .......................................................... 995  
**Andrés Farías, Mario Südholt**
# ODBASE 2002 FULL PAPERS

## Ontology Languages

**Well-Founded Optimism: Inheritance in Frame-Based Knowledge Bases** .................................................. 1013  
*Guizhen Yang, Michael Kifer*

**A Defeasible Ontology Language** ........................................... 1033  
*S. Heymans, D. Vermeir*

**On the Semantics of Anonymous Identity and Reification** ............ 1047  
*Guizhen Yang, Michael Kifer*

**Extending Datatype Support in Web Ontology Reasoning** ............ 1067  
*Jeff Z. Pan, Ian Horrocks*

## Conceptual Modelling and Ontologies

**A Conceptual Modeling Approach for Semantics-Driven Enterprise Applications** ..................................... 1082  
*Boris Motik, Alexander Maedche, Raphael Volz*

**Towards Ontological Foundations for UML Conceptual Models** ........ 1100  
*Giancarlo Guizzardi, Heinrich Herre, Gerd Wagner*

**Towards Secure Object Oriented Database Systems** ................. 1118  
*Yun Bai*

## Ontology Management

**Information-Flow-Based Ontology Mapping** .......................... 1132  
*Yannis Kalfoglou, Marco Schorlemmer*

**The Semantics of Semantic Annotation** .................................. 1152  
*Sean Bechhofer, Leslie Carr, Carole Goble, Simon Kampa, Timothy Miles-Board*

**A User Behavior-Based Agent for Improving Web Usage** .......... 1168  
*Francesco Buccafurri, Gianluca Lax, Domenico Rosaci, Domenico Ursino*

**Usage-Oriented Evolution of Ontology-Based Knowledge Management Systems** .......................... 1186  
*Nenad Stojanovic, Ljiljana Stojanovic*
Ontology Development and Engineering

OntoEdit: Guiding Ontology Development by Methodology and Inferencing .................................................. 1205
York Sure, Juergen Angele, Steffen Staab

Open Mind Common Sense: Knowledge Acquisition from the General Public .................................................... 1223
Push Singh, Thomas Lin, Erik T. Mueller, Grace Lim, Travell Perkins, Wan Li Zhu

Formal Ontology Engineering in the DOGMA Approach ....................... 1238
Mustafa Jarrar, Robert Meersman

XML and Data Integration

A Dynamic Model for Mapping XML Elements in a Object-Oriented Fashion ................................................... 1255
Francesco Garelli, Carlo Ferrari

KF-Diff+: Highly Efficient Change Detection Algorithm for XML Documents .................................................. 1273
Haiyuan Xu, Quanyuan Wu, Huaimin Wang, Guogui Yang, Yan Jia

Naming in XML Documents ........................................ 1287
Ramon Lawrence

Tools for Intelligent Web

Reasoning with Ontologies by Using Knowledge Conjunction in Conceptual Graphs ........................................ 1304
Dan Corbett

Natural Language Annotations for the Semantic Web .................. 1317
Boris Katz, Jimmy Lin, Dennis Quan

A Metadata Integration Assistant Generator for Heterogeneous Distributed Databases .............................. 1332
Young-Kwang Nam, Joseph Goguen, Guilian Wang

Intelligent Web Search via Personalizable Meta-search Agents ........ 1345
Larry Kerschberg, Wooju Kim, Anthony Scime

ODBASE 2002 Posters

Defining Information System Components ............................ 1359
Thang Le Dinh, M. Leonard

Discovering Resources in the Semantic Web .......................... 1360
Luis Anido, Judith Rodríguez, Manuel Caeiro, Juan Santos
Geodata Interoperation via Semantic Correspondences ........... 1361
   Anastasiya Sotnykova

Extending Datatype Support in Web Ontology Reasoning .......... 1362
   Jeff Z. Pan, Ian Horrocks

Author Index ........................................................................ 1365
On the Move to Meaningful Internet Systems 2002:
CoopIS, DOA, and ODBASE
Confederated International Conferences CoopIS, DOA,
and ODBASE 2002 Proceedings
Tari, Z. (Ed.)
2002, XLVI, 1372 p. 296 illus. In 2 volumes, not available
separately., Softcover
ISBN: 978-3-540-00106-5