

---

# Contents

## Peer-to-Peer and Semantic Web

*Heiner Stuckenschmidt, Frank van Harmelen, Wolf Siberski, Steffen Staab* . . . . 1

---

## Part I Data Storage and Access

---

### Overview: Data Storage and Access

*Heiner Stuckenschmidt* . . . . . 21

### 1 An RDF Query and Transformation Language

*Jeen Broekstra, Arjohn Kampman* . . . . . 23

### 2 RDF and Traditional Query Architectures

*Richard Vdovjak, Geert-Jan Houben, Heiner Stuckenschmidt, Ad Aerts* . . . . . 41

### 3 Query Processing in RDF/S-Based P2P Database Systems

*George Kokkinidis, Lefteris Sidiourgos, Vassilis Christophides* . . . . . 59

---

## Part II Querying the Network

---

### Overview: Querying the Network

*Steffen Staab* . . . . . 85

### 4 Cayley DHTs — A Group-Theoretic Framework for Analyzing DHTs Based on Cayley Graphs

*Changtao Qu, Wolfgang Nejdl, Matthias Kriesell* . . . . . 89

### 5 Semantic Query Routing in Unstructured Networks Using Social Metaphors

*Christoph Tempich, Steffen Staab* . . . . . 107

|                                                                                                   |     |
|---------------------------------------------------------------------------------------------------|-----|
| <b>6 Expertise-Based Peer Selection</b>                                                           |     |
| <i>Ronny Siebes, Peter Haase, Frank van Harmelen</i>                                              | 125 |
| <b>7 Personalized Information Access in a Bibliographic Peer-to-Peer System</b>                   |     |
| <i>Peter Haase, Marc Ehrig, Andreas Hotho, Björn Schnizler</i>                                    | 143 |
| <b>8 Designing Semantic Publish/Subscribe Networks Using Super-Peers</b>                          |     |
| <i>Paul-Alexandru Chirita, Stratos Idreos, Manolis Koubarakis, Wolfgang Nejdl</i>                 | 159 |
| <hr/>                                                                                             |     |
| <b>Part III Semantic Integration</b>                                                              |     |
| <hr/>                                                                                             |     |
| <b>Overview: Semantic Integration</b>                                                             |     |
| <i>Heiner Stuckenschmidt</i>                                                                      | 183 |
| <b>9 Semantic Coordination of Heterogeneous Classifications Schemas</b>                           |     |
| <i>Paolo Bouquet, Luciano Serafini, Stefano Zanobini</i>                                          | 185 |
| <b>10 Semantic Mapping by Approximation</b>                                                       |     |
| <i>Zharko Aleksovski, Warner ten Kate</i>                                                         | 201 |
| <b>11 Satisficing Ontology Mapping</b>                                                            |     |
| <i>Marc Ehrig, Steffen Staab</i>                                                                  | 217 |
| <b>12 Scalable, Peer-Based Mediation Across XML Schemas and Ontologies</b>                        |     |
| <i>Zachary G. Ives, Alon Y. Halevy, Peter Mork, Igor Tatarinov</i>                                | 235 |
| <b>13 Semantic Gossiping: Fostering Semantic Interoperability in Peer Data Management Systems</b> |     |
| <i>Karl Aberer, Philippe Cudré-Mauroux, Manfred Hauswirth</i>                                     | 259 |
| <hr/>                                                                                             |     |
| <b>Part IV Methodology and Systems</b>                                                            |     |
| <hr/>                                                                                             |     |
| <b>Overview: Methodology and Systems</b>                                                          |     |
| <i>Steffen Staab</i>                                                                              | 279 |
| <b>14 A Methodology for Distributed Knowledge Management Using Ontologies and Peer-to-Peer</b>    |     |
| <i>Peter Mika</i>                                                                                 | 283 |
| <b>15 Distributed Engineering of Ontologies (DILIGENT)</b>                                        |     |
| <i>H. Sofia Pinto, Steffen Staab, Christoph Tempich, York Sure</i>                                | 303 |
| <b>16 A Peer-to-Peer Solution for Distributed Knowledge Management</b>                            |     |
| <i>Matteo Bonifacio</i>                                                                           | 323 |

|                                                                                                                                                                                                             |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>17 Xarop, a Semantic Peer-to-Peer System for a Virtual Organization</b>                                                                                                                                  |     |
| <i>Esteve Lladó, Immaculada Salamanca</i> . . . . .                                                                                                                                                         | 335 |
| <b>18 Bibster — A Semantics-Based Bibliographic Peer-to-Peer System</b>                                                                                                                                     |     |
| <i>Peter Haase, Björn Schnizler, Jeen Broekstra, Marc Ehrig, Frank van Harmelen, Maarten Menken, Peter Mika, Michal Plechawski, Pawel Pyszlak, Ronny Siebes, Steffen Staab, Christoph Tempich</i> . . . . . | 349 |
| <b>Author Index</b> . . . . .                                                                                                                                                                               | 365 |