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HPRD: a high performance RDF database. (English) Zbl 1200.68088

Int. J. Parallel Emergent Distrib. Syst. 25, No. 2, 123-133 (2010).

Summary: A high performance storage system for RDF documents is introduced. The system employs optimised index structures for RDF data and efficient RDF query evaluation. The index scheme consists of three types of indices. Triple index manages basic RDF triples by dividing original RDF graph into several sub-graphs. Path index manages frequent RDF path patterns for long path query performance enhancement. Context index is optional for context oriented RDF data and temporal RDF data. In this paper, we describe the organisation of index structures, which shows the process of evaluating queries based on the index structures, and provide a performance comparison with exist RDF database through several benchmark experiments.

MSC:

68P15 Database theory
68T05 Learning and adaptive systems in artificial intelligence

Keywords:

high performance; RDF; database; semantic web

Software:

HPRD; Jena

Full Text: DOI

References:

[1] Agrawal R., Mining Sequential Patterns (1995)

[2] S. Alexaki, V. Christophides, G. Karvounarakis, D. Plexousakis, and K. Tolle, The ICS-FORTH RDFSuite: Managing voluminous RDF description bases, SemWeb Workshop, Hongkong, China, 2001

[3] DOI: 10.1038/scientificamerican0501-34 · doi:10.1038/scientificamerican0501-34

[4] J. Broekstra and A. Kampman, Sesame: A generic architecture for storing and querying RDF and RDF Schema, Technical report, Administrator Nederland b.v., 2001 · Zbl 1048.68693

[5] J.J. Carroll, I. Dickinson, C. Dollin, D. Reynolds, A. Seaborne, and K. Wilkinson, Jena: Implementing the Semantic Web Recommendations, Technical report, HP Labs, 2003

[6] Garofalakis M.N., Spirit: Sequential Pattern Mining with Regular Expression Constraints (1999)

[7] Guha R.V., Contexts for the Semantic Web (2004)

[8] Gutierrez C., Temporal RDF (2005)

[9] Harth A., Optimized Index Structures for Querying RDF from the Web (2005)

[10] DOI: 10.1137/0222058 · Zbl 0784.68027 · doi:10.1137/0222058

[11] A. Matono, T. Amagasa, M. Yoshikawa, and S. Uemura, An indexing scheme for RDF and RDF schema based on suffix arrays, SWDB Workshop, Berlin, Germany, 2003

[12] Matono A., A Path-based Relational RDF Database (2005)

[13] B. McBride, Jena: Implementing the RDF model and syntax specification, SemWeb Workshop, Hongkong, China, 2001

[14] Ono K., Measuring the Complexity of Join Enumeration in Query Optimization (1990)

[15] DOI: 10.1007/b100348 · doi:10.1007/b100348