Indexing XML as a Multidimensional Problem

Abstract:
XML is widely seen as the lingua franca of the Internet. Originally designed to become the successor of HTML, XML has found its way into many unexpected parts of applications, ranging from simple formats for data exchange to archiving data in XML. With the growing need to deal with large collections of XML documents as well as with the rapid increase in the document sizes there is a strong demand to store and query XML data in databases. This ranges from the development of new, efficient index structures for XML to mapping schemes for XML to relational and object-oriented database systems. As relational database management systems (RDBMS) hold the largest market share there was and still is intensive research going on to efficiently store XML in these systems. Several mapping schemes have been proposed in the literature but to our knowledge there has never been an extensive analysis of a mapping scheme in conjunction with index structures. In our work we discuss a multidimensional approach for indexing XML. We propose a multidimensional mapping scheme for XML to relational DBMS and discuss the performance of UB-Trees and compound B-Trees for the indexing of this mapping scheme.

Stichworte:
XML; Indexing; UB-Tree; B-Tree; Mapping Scheme; Performance Evaluation

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