Controlling label size increment of efficient XML encoding and labeling scheme in dynamic XML update

ABSTRACT

Problem statement: In order to facilitate XML query processing, labeling schemes are used to determine the structural relationships between XML nodes. However, labeling schemes have to reliable the existing nodes or recalculate the label values when a new node is inserted into the XML document during XML update process. EXEL as a labeling scheme is able to remove relabeling for existing nodes during XML update process. Also, it is able to compute the structural relationship between nodes effectively. However, for the case of skewed insertions where nodes are always inserted at a fixed place, the label size of EXEL scheme increases very fast. Approach: This study discussed how to control the increment of label size for the EXEL scheme. In addition, EXEL does not consider the process of deleting labels. We also study how to reuse the deleted labels for future label insertions. Results: We proposed an algorithm which is able to control the label size increment. Conclusion: It required less storage size to store the inserted binary bit string and thus can improve query performance.

Keyword: Bit string; Reuse of deleted label; Skewed insertion; XML relabeling