COMPARISON OF QUERY CACHING APPROACHES IN P2P NETWORKS

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This article is comparing query caching implementations on various researches that have been implemented on several peer-to-peer (P2P) routing strategies. Several routing strategies have been compared in the previous chapter. This comparison is aim to foresee the current trend of using caching for query routing in P2P.

Furthermore, the idea of caching and how the different approaches tackle efficiency and performance issues will be discussed. Table 1 presents a summary of the comparison of several caching approaches. Each column of the table represents different research work (based on cited literatures) while the row list the research characteristics that has been compared. Discussion on each approach will be in the subsequent paragraphs.

Doulkeridis, D. et al. [1] have proposed schema caching in the unstructured P2P network. Schema of the source data location in the remote peer is captured while retrieving the query result. Both items are returned together while returning the query result. This schema is then locally cached in the form of a tree-structure which is named as XSCache. XSCache is the

Research Criteria	Doulkerindis, C., et. al. [1]	Yin, Z, et. al. [2]	Patro, S., Hu, Y. C [3]	Skobeltsyn, G., Aberer, K. [4]	Kachimi, M., Yetongnon, K. [5]	Lilas, K., Pitoura, E. [6]	Qian, W., et. al. [8]	Battre, D. [9]
Network structure U: Unstructured S: Structured	U	U	U	U	S	S	S	S
Protocol	Not specified	Limewire of Gnutella	Gnutella	DCT	HON	Chord	CON	Pastry
Cached item	Schema of shared data location	Query replying message	Query string, neighboring & TTL	Document caching along the search path of a query	Query result	Query result	Query or sub-query	Subject, predicate & object of query result
Local cached? Y: Yes N: No	Y	Y	N (Cached at the gateway)	Y	N (Cached at the super-peer)	Y	Y	Y
Cached structure	Cached schema construct a tree structure	List	Integrate the cached item with HTTP data caching	Indexed the local cached in DHT	Cache the schema of peer in HON	Indexed the local cached in DHT	Tree	Indexed the local cached in DHT
Shared data format	XML	Not specified	Not specified	XML	Not specified	XML	XML	RDF
Cached replacement strategy	LRU	Move to other peer with longer uptime	Not specified	Top-k rating	LRU, NFU	LRU	Not specified	Not specified

Table 3 : Comparison of researches on query caching in P2P