A Novel Approach of Intelligent Query Routing Technique in Peer to Peer Networks

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ABSTRACT

Decentralized model of Peer-to-Peer Networks introduces a new environment in database systems for the query routing process. To process a single query, we need to search all the nodes to retrieve the response of the query request with the path of nodes having high execution time. In the previous work, it will take more time to search the particular query in all the nodes. Our Objective is to overcome all the drawbacks of the previous work to reduce the delay and make 100% accurate results for query processing and routing. In this paper we proposed a novel approach of intelligent query routing in Peer to Peer Network. In a large number of peer Network, the nodes are joined together by searching the keyword of a database according to the interest. To reduce the delay and overhead of the network by electing a head from the group of nodes for routing the queries. With respect to all nodes, a query request sends to all the head and identifies the appropriate answer for the query request by ranking methodology and duplication of data can be neglected to avoid wastage of space.

Key words: Peer-to-Peer Networks, Query Routing, Query Processing.

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INTRODUCTION

The Peer-to-Peer database management system runs to the high level of the standard database management systems, to connect its database with other peer database on the network. WWW requires infrastructure and it is difficult for individual users to share their files in an easy and independent way is the main disadvantage of file sharing. User has no direct control over the published files to make them available for immediate search. Query traverse the network moving from the initiating node to a neighboring node and then to a neighbor until it locates the requested resources. With all the peers, first it searches the relevant keyword in all nodes and the same relevant interested nodes are grouped together. For each group a head is elected as a cluster head and same interest nodes are act as a child. Query request is sent to all the clustered head and retrieve the query answering from the appropriate peer. In the cluster head the database replication can be neglected by Apriori Algorithm. The previous work addressed query routing, schema matching and query optimization problems in P2P data sharing systems. Query routing and processing are two problems affected by the absence of a global catalog. Locating relevant data sources and generating a close to optimal execution plan become more difficult. Thus the proposed solutions concentrate on both the problems. It proposed to combine the routing capabilities of P2P systems and the semantic richness of PDMS, enabling effective searches in a distributed, totally dynamic and flexible environment, not depending from a

centralized server and without losing the semantic richness of queries. In the future, they plan to deepen the test activity, stressing our approach on large real-life DL scenarios. Query Routing improves on traditional routing by prioritizing nodes which have been previously good at providing information about the types of content referred to the query. Section 2 describes the proposed approach for node clustering and Database replication. Section 3 describes the comparative study of existing and proposed approach. The aim of the current work is the development of Database System in Peer-to-Peer system for effective query processing and routing.

PROPOSED APPROACH

All the peers are clustered together according to the interest by searching the keywords of the relevant database.

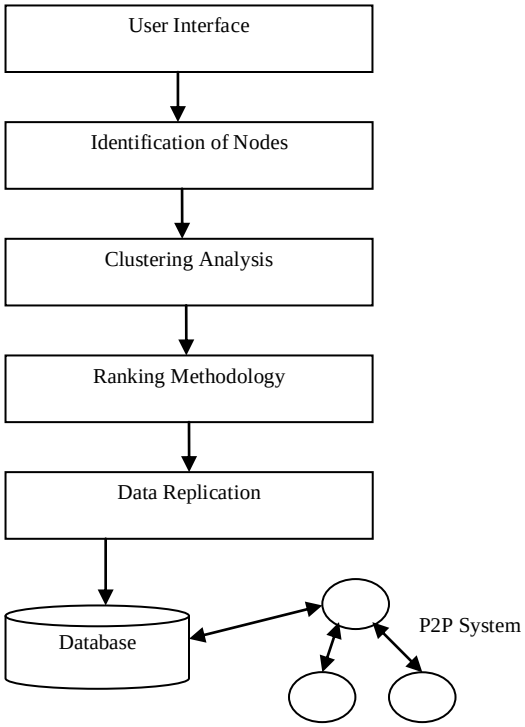

Figure 1:Architecture

Among all the nodes, it searches the relevant keyword in the nodes and according to the interest of the relevant keyword the nodes are grouped together. For each group a head is elected as a cluster head and same interest nodes are act as a child. In each cluster head a list of database is maintained. Query request is sent to all the clustered head, to find the resources. When the particular resources is identified in a that node, it has to feedback the updated results to the head and retrieve the query answering from the appropriate peer. Among all the nodes by ranking methodology it identifies which nodes is having the appropriate answer when compared to all the nodes in all the clustered head, a database list is maintained, a new node want to join in the particular node, the head scans the node, if the resources is already available no duplication of data is allowed and the node is neglected. Suppose if the resources are relevant to other node, the

data is added to that particular node and no new node is created. If it is not relevant a new node is created in the head.

NODES CLUSTERING APPROACH

In a Peer-to-Peer environment to perform query processing we need to search more number of peers which is connected to the network. Our approach minimize the time instead of searching all searching the keywords of the relevant database the peers are grouped together. In each group elect a head and all relevant keywords of database are stored in the list. Query can be sent to all the clustered head and check the list in the head whether the particular query is processed by the nodes with relevant answer.User can join the cluster based on his semantic interest. He should send the joining request to the cluster head and receive the join acknowledgement. A user can change his cluster by leaving the current cluster and joining the new cluster. In case of leaving a cluster, the user sends a notification to the existing cluster head. In both cases, the cluster heads updates the member details.

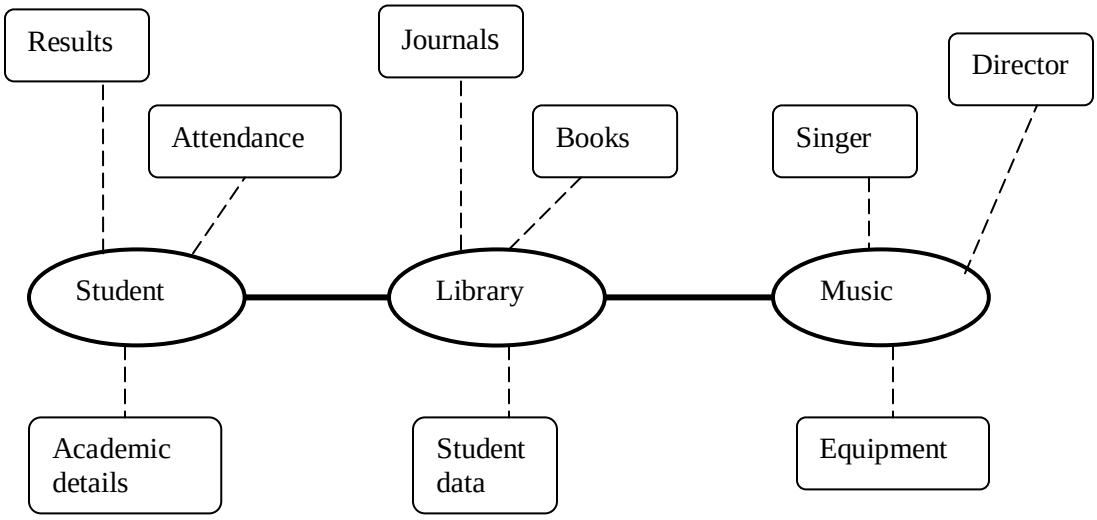

Figure 2: Scenario Of Database Of Semantic Interest

Consider the above, among the entire peer according to their interest the nodes are clustered together and cluster head is elected and the query is routed to the appropriate cluster to retrieve the answer for that particular queries. By this approach it need not to search for a number of nodes to process the query and minimize the delay and overhead of networks. A new peer want to join in a network the relevant keywords of the nodes matches with any of the clustered head and the nodes joins on the cluster. Query is routed to a number of relevant peers instead of being broadcast to the whole network.

1. Identify the nodes in a P2P
2. Check the relevant data in all the nodes

    2.1.Group the nodes with relevant database

2.2.Elect a cluster head among all nodes

2.3.Query processing done through the clustered head to minimize the delay

If we need the information about the academic details of a student, the query request is sent to all the cluster head which cluster head matches with the relevant database and the corresponding query is sent to the particular node of academic details and retrieves the results, all results are feedback and updated in the list of cluster head.

DATABASE REPLICATION APPROACH

In the entire cluster head the list of database of the group nodes are maintained. Replication of data can be neglected by using Apriori Algorithm. If a new node contains the same database and it want to join in that particular cluster head. The Cluster head scan the particular node of database if it is not matches with the list, that node is joined in the head, if it matches the database with the list and it will scan the data of the database and send to the node of the database. Only the original and new data is added to the node whether the data is duplicated by scanning the data it is neglected. Peer with the higher rank will be selected for fetching the resource .Since the searching is limited to the cluster heads, this technique minimizes the overall delay and overhead. The peer's utilize this scheme to perform an online ranking of its neighbors in order to determine to which one to forward a query. To compute the ranking of each peer, node compares query to all remaining queries in the profiling structure, for which there is a query hit. Query request sends to all the nodes and identifies the appropriate answer for the query request.

1. If New Node joins the network
2. Scan the new node in each cluster head
3. Matches with the database & no replication of data
4. Node and relevant data joins in that particular head
5. Either any replication of data identified network leave the nodes

COMPARATIVE STUDY

Compare to the previous work by electing a cluster head among the nodes and routing of queries can be done effectively by our proposed technique. Data replication is eliminated and wastage of memory space can be eliminated. In our proposed approach **reduction** in the overhead of the network, neglecting the replication of data,minimizing the wastage of space and delay.

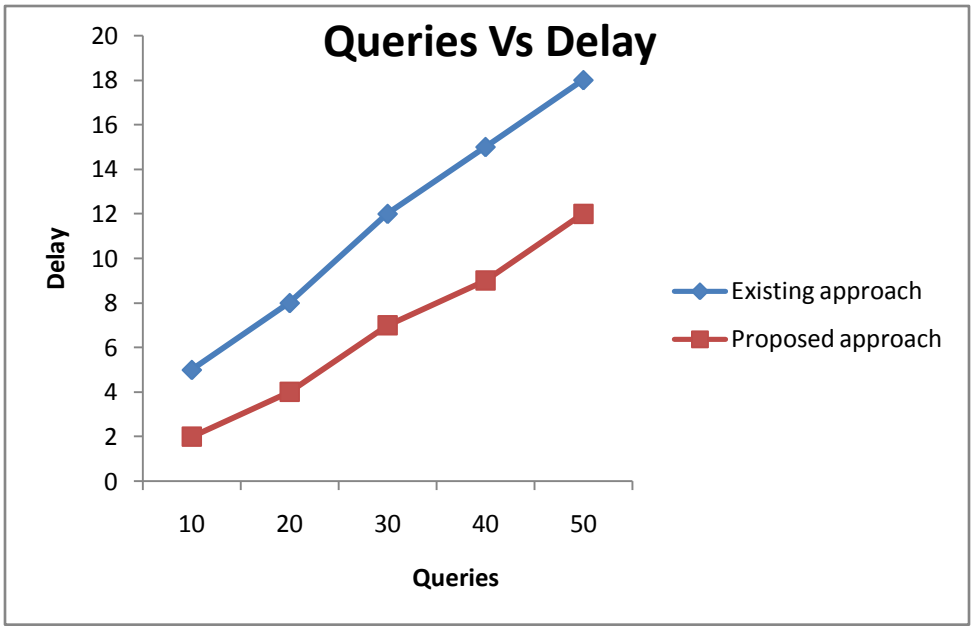

Figure 3: Query Vs Delay in Existing and Proposed approach

CONCLUSION

In this paper, we propose a novel approach of query routing in Peer to Peer Networks. By analyzing the study of this paper, there should be a reduction in the overhead of the network and neglecting the replication of data with minimizing the wastage of space and delay. In future work we implement the concept of the above paper with practical issues. We will show that the proposed approach is most efficient technique for peer to peer network.

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