Multilingual Data Retrieval from Distributed Database Server Using Mobility

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Abstract—In this paper we are describing the data retrieval from distributed database server using a mobile agent. Many systems have their distributed database server. Among distributed environment to find the data is costly task because transferring of data from database server to base station where the query is generated, this can effect on network traffic and response time. In order to reduces this cost of parameter the mobile agent used to fetch the result from various database. Along with maintaining a base station to accept the statement in two languages and generates the query. This paper presents the study of deployment of multiple mobile agents.

Keywords-- Mobile Agent, Data Retrieval

I. INTRODUCTION

In the mobile computing environment no of user can access the data from various locations. However, the accessing the information should not restrict the mobile agent from specific location that it supports to the location pliability. With the point of view of the data base management, the resources available are very limited to the mobile system and it causes the handling of fraction of data to the mobile parasites. Along the flourishing technology, there is extremity to make possible sharing of data among fixed hosts and the mobile devices, there was need to embrace distributed computing technology. Nowadays mobiles are not only for making contact but mostly those are to be in use of Internet. These mobiles are GPRS empowered which stipulate a route for other devices to make transmission as well as receiving of data. The GPRS enabled devices are able to access data through the distributed environment, so these can sustain to the limited resources of the mobile devices. The devices are preserved with the use of mobile agents. The technology helps to accomplish all the computations at node side only.

The mobile agent system is helpful to use like an effectual tool which is used to search and fetch the data from distributed environment where the storage of the data is at the distributed nodes of the system.

The code execution is done at the mobile agent side and query is going to be fired on database.

The technology helps to reduce execution time. When the query run on the database, it returns back to the node where the created agent is there. The agent is responsible to carry the answer of the query. It is the effective alternative to make transmission of the data, also it degrade execution time. Even the required bandwidth for the execution is less with the help of mobile agent. The paper contains the implementation of the query retrieval approach with the use of multi agent system and the directories.

The main goal of the distributed data retrieval to do gathering of data from various and heterogeneous sources of data which resides in the distributed environments.

II. RELATED WORK

In multi agents system searching the data which spread into various nodes is implemented. This approach is implemented using a Distributed Agent System. D’Agents is a Multi Agent System (MAS) for creating and maintaining agents. Agents can measure the similarity between the words where the coordinator agent maintain directory. At the coordinator node request has been accepted and process further for tokenization using Stemming Algorithm. After that these token are divides into three parts, such as stop keyword, object keyword and actions keyword. The stop keywords are neglected and Action keyword is transfer to search agent for comparing values with database. If the result is obtains then it retrieve the data using local agent and perform the simple join operation with base station. Finally base station sends data to Mobile Agent.

III. MOTIVATION

Centralized Solutions are generally more competent. In distributed environment computations can be moved to a single node and it can be optimized to get best competent.
However, distributed computations are sometimes easier to understand and easier to develop especially when the problem being solved is itself distributed. Multi-agent mobile systems are the best way to design distributed computing systems.

IV. TOOL USED IN IMPLEMENTATION

Java Server Pages (JSP) technology enables you to mix regular, static HTML with dynamically generated content. You simply write the regular HTML in the normal manner, using familiar Web-page-building tools. You then enclose the code for the dynamic parts in special tags, most of which start with <% and end with %>

Different type of database software is used to record data such as oracle, MySQL, MS-Acess, Sybase etc. Using this database software creates a different type of database. For eg. Shopping, Policy, Bank, etc.

V. MULTI AGENT SYSTEM

Storing a data centrally co-located at same storage space create problems regarding security credentials, network traffic and difficult to load balance rather providing a data storage on distributed cloud provide profit in terms of ease of maintaining data shared out in different domain.

1.1 Difficulties because of storing data centrally:

It is the single point of failure that can bring an entire organization down in the event of a server crash. Organization spends hundreds of thousands or millions of dollars each year to prevent that and provide for redundant systems to prevent that often at a cost that reduces or eliminates the cost effectiveness.

It creates the bottleneck. Performance can suffer because companies usually underestimate the demands on the database server.

A shared out data storage is computer network where information is stored on more than one host in replicated fashion. These are non-relational databases that provide quick access to data over a large number of hosts. Ex. Limited distributed databases are Google's BigTable, which is much more than a distributed file system or a peer-to-peer network.

Features of Shared out Data Storage:

- Improved share ability i.e. Publically or Private sharing of data.
- Improved Availability of data in terms of one node fails i.e. Data Replication available faster access to information also available security in terms of terminal failure
- Improve reliability
- Improved Performance
- Modular Growth i.e. Storage space can be increase without affecting other nodes
- Economics i.e. It is also much more cost-effective to add host to a network than to update a mainframe system.

Features of Homogeneous Non communicating Agents:

- A homogeneous storage system is where the majority of the storage solution comes from the same source, including:
  - Storage system – including primary and secondary storage devices
  - Storage management software – software for managing the resources for all the storage systems
  - Switches, interfaces and adapters required for the storage systems infrastructure

- Reactive vs. deliberative agents
- Local or global perspective
- Modeling of other agents states
- How to affect others

Heterogeneous refers to a mixed environment with technology from multiple merchant. Think of heterogeneous as an environment that has interoperable components, and homogenous as a propriety or merchant-specific environment.

Understanding each other:

Planning communicative acts
- Benevolence vs. competitiveness
- Resource management (schedule coordination)
- Commitment/decommitment
- Truth in communication

1.2 Agent Communication:

Traditional inter-process communication is done with Multi-Agent applications. These mechanisms are too low level for supporting the communication requirements of interacting mobile agents. The reason is that the traditional inter-process communication mechanisms do not consider mobility of interacting entities. Since mobility is a distinguishing feature of mobile agents, the locations where agents are executing at the time of communication, and the location where actual communication takes place plays an important role.

In the inter-agent communication, mobile agents communicate with each another at a specific location in the system.
Either the sender agent, or the receiver agent, or both of the agents need to visit the location to communicate. The inter-agent communication technique as shown Fig 4 involves a base station running on coordinator, a search agent (SA) running on database server, for data to be communicated.

But in this work of inter-agent communication, agents communicate with one another independent of the location in the network. A coordinator agent is responsible for a large work, subcontracts various tasks of the work to one or more search agents by negotiation. To implement this efficiently, the coordinator agent and one or more searcher agent(s) communicate with one another.

The protocol used for the communication between the base station and the search agents, is the FIPPA Request protocol. It is well suited for the process, since the coordinator agent has to notify message to all search agents and the required parameters. The coordinator agent initiates a FIPPA-Request protocol with each search agent and it sends a request message to the search agent asking a service. The searcher agent receives, executes and returns message to the coordinator agent along with the result of the action.

Fig 1.scenario of agent communication

VI. PROPOSED SYSTEM

A client can enter the request using mobile device. This mobile device should be GPRS enabled for connecting to the Base station. This whole node process fig.5 shows the proposed system. Base station works as stationery node, it maintain the directory of the database related information. When the coordinator node receives the request, it checks the directory for domain of information where the data stored in distributed database server. Depending on this base station will decide which database having the answer of query.

In fig.2 four different databases server are shown. Out of these only two databases contain answer to the query. After that coordinator creates no of search agents as that of these databases, will search the answer for the given query. If the two databases having the answer of query then two search agent will be created. It will assign query to these agents. After receiving query from base station search agents move to their respective database servers. Another stationery agent is works for getting result from database known as local agent. Local agents are present at each node where data resides. Search agent can not directly retrieve data from database as it is not having knowledge about database management system used for database. Local agent is having knowledge about structure of database; it can retrieve data from database. These results are returned to search agent. The same process is repeated in all database servers. Now all search agents will return these retrieved results to coordinator agent. Coordinator agent will collect all these results and perform a simple join operation to get final answer of the query. This answer can be returned to mobile device where query was generated.
VII. CONCLUSION

This paper presents a study of Multi-agent system usage for the management of distributed databases by which bandwidth and network traffic is reduced. Also this approach reduces transfer of data. Multi-agent technology is an alternative approach to the client-server traditional systems.

Mobile agent based approach offers some advantages, such as scalability of the system, load balancing and low traffic in the network. The system is providing multiple language support.

The mobile agents require a proper environment for implementation and execution. For the implementation of the mobile agents, the JSP (Java Server Page) is chosen. Further work will be related to the security of the mobile agent.

REFERENCES

