Abstract

Data redundancy is an active area of the research. While an agent works in a Multi-Agent System (MAS) with a passage of time the messages exchanged between them increases with the passage of time. This is because the functionalities data is dependent upon other agents with respect to functional requirements. Usually, one of the agents in a MAS is assigned the responsibility of having access to a database as contrary to replicating the same database on the agents. To abstain from a single point of failure a database is not kept on a single agent but rather than more than one agent. In this approach, the system has more load because one agent is responsible for every agent query and it has to send the same messages to more than one agent which causes data redundancy. In this research, we have presented the MASCD framework for reducing data redundancy in MAS communication. Our proposed approach showed how we split the database based on the product names and efficiently distributed its data to each agent. We have used a primebased table. We apply the hash function and get an index of that agent which has the access to that data. Each agent is responsible for its particular data. We use the distributed hash table that stores data in key-value pairs for efficient query purposes. Each agent has a finger table that keeps the following and previous node. For communication between agents. We used FIPA messages and showed how an agent could interact with each other in an optimized manner. Lastly, we demonstrate the usage of the proposed technique via real-world case study of mobile phones and university information systems.