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To Provide Security through Agent Mining System

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ABSTRACT:

Security is major factor any system. In various existing projects we are having authentication and authorization technique to identify the valid user and provide right privileges to whom. When we are using user ID and password to protect from unauthorized accessibility it is not sufficient and not at all reliable also, because in the server client architecture whenever we are transferring this data it may access by anyone else (hackers). This data may be misused which will be very harmful for the entire system. Here we need to solve this problem by introducing some trustable technique on which we can easily secure our sensitive data during transaction. In order to prevent this and make more secure the RSA algorithm is used. The information that we enter for user name and password is encrypted by RSA algorithm. So it is impossible for the hackers to identify the user name and password.

Keywords: Agent, Encryption, Decryption, Key, RSA

1. INTRODUCTION

With the development and popularity of E-commerce and electronic government affairs, many units are constructing or have already finished the constructing of websites, and the proportion of adopting configuration of ASP(AS-PX) + SQL Server2000 + IIS or ASP(ASPX) +ACCESS + IIS is very large, so the application of database penetrated into various fields. As the aggregation of information, database system is the core part of computer information system, so its security is very important, which concerning with the rise and decline of enterprise. SQL Server is the large scale network database system launched by Microsoft; it uses many advantages from Sybase database for reference and provides effective security control strategy for developers and DBA, which is one of the most popular commercial database systems at present. Strengthening the safety control of SQL Server database is the most common and effective mean to ensure the database security of the system. Database system does not allow users without authority to operate the database. Database account is the outmost security protection measure provided by the system.

In general, by means of capture the database account of one site, the attacker may obtain the visits to many other sites immediately, and cause the users to suffer from more damages. SQL Server provides two methods of user's management.

One is to use Windows identification; the user can connect the SQL Server as long as it can pass the Windows user account validation. Operation system can manage users to avoid user name and password embedded in the concatenation string, by means of setting password expiration date, minimum length and locking the account after many times ineffective logging in, the logging in security was improved greatly. However, when using this configuration, the users need to bind tightly to the Windows field in the application system under Web environment, which is lack of flexibility. As for the Internet application program in charge of thousands upon thousands and even millions of users, Windows identification is not convenient.

The other method is SQL Server authentication mode, that is, to entitle users with certain authority by means of user logging in, and then comparing the data store in the SQL Server database with afferent data, if correct, it

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will have right to do corresponding operation. The disadvantage of this method is that the database is easy to be downloaded or copied, and also easy to be attacked by SQL Injection.

Hence in our project we propose a method to encrypt the username and password and encrypting them using RSA algorithm.

2. RELATED WORK

2.1 Multi-Agent Learning

A number of co-operative distributed learning systems have been produced. MALE (Sian, 1991) is a homogeneous, blackboard-based system. Each agent has a data-source and a clustering algorithm. The agents propose rules which characterise the data seen and critique other agents' proposals. Eventually a consensus about the knowledge extracted from the data is reached. ANIMALS are a heterogeneous multi-agent learning system. Each agent has local knowledge and either an inductive or deductive learning algorithm. Agents attempt to solve a problem-solving task by either retrieving the knowledge required, or by using learning to acquire it. Failures result in communication with other agents which are passed sub-goals, which are then treated as tasks. Both MALE and ANIMALS used propositional learning methods.

2.2 First Order Knowledge Discovery

Some ILP systems have been applied to data-mining. One example is ENIGMA (Bergadano, Giordana & Saitta, 1991), which learnt fault diagnosis, rules based on mechanical vibration data another is GOLEM (Muggleton, King & Sternberg, 1992), which learnt rules that predicted structural features in new proteins from existing protein data.

2.3 Multi-Agent Knowledge Discovery

The Carnot Project addresses the problem of logically unifying distributed, heterogeneous business information. It appears that the underlying architecture uses software agents. Carnot provides a knowledge discovery system, presumably as an agent. However, we are uncertain whether this agent co-operates with similar agents, and whether a first-order learning algorithm is used.

2.4 Distributed Database Mining

One approach which has emerged for mining distributed databases is to use a distributed database manager to provide seamless integration of the distributed data to data-mining algorithms. Our approach differs in that network traffic is restricted to the exchange of knowledge between agents.

3. PROPOSED WORK

The proposed system is a computerized one. This has greater accuracy and efficiency. This takes only limited time for calculation. The proposed system can be used to maintain efficiently the Monitoring Department schedule of any type of company. In larger organizations employees are large. At that time also the proposed system is useful and helpful.

3.1 System details

There are three modules in the project

- Client
- Agent
- Security

Client

Client is a module in the project how can access the all basic functionality of banking system in more secure

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manner. Client can use their confidential information securely by using this system. The system provides basic transaction for every authorized client. Client can access their account details and other information securely. Client cannot interact directly to the baking server because of security reason.

Agent

Agent is another mediator module which will receives the secure encrypted information and decrypts it. The decrypted information sends to the bank server and processes it than the client will get the response. The agents interact with banking server and their services and create the response to the client.

Security

Security module is another module which provides complete secure and convenient environment for banking transaction. Security module responsible to gets the data from the client and encrypt it and send to the agent for processing. To encrypting the data this module uses the RSA algorithm which will provides encryption key based mechanism for secure data transaction over the network.

3.2 System Design

System design provides the understandings and procedural details necessary for implementing the system recommended in the system study. Emphasis is on the translating the performance requirements into design specifications. The design phase is a transition from a user-oriented document (System proposal) to a document oriented to the programmers or database personnel. System design goes through two phases of development:

- 1. Logical Design
- 2. Physical Design

The logical design of an information system is analogous to an engineering blue print of an automobile. It shows the major features and how they are related to one another. The detailed specification for the new system was drawn on the bases of user's requirement data. The outputs inputs and databases are designed in this phase. Highly useful Output design is one of the most important features of the information system. When the output is not of good quality the users will be averse to use the newly designed system and may not use the system. There are many types of output, all of which can be either or can be critical to the users, depending on the manner and degree to which they are used. Outputs from computer system are required primarily to communicate the results of processing to users; they are also used to provide a permanent hard copy of these results for later consultation. Interactive outputs, which involve the user is communicating directly with the compute, it is





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Particularly important to consider human factor when designing computer outputs. End user must find outputs easy to use and useful to their jobs, without quality output, user may find the entire system unnecessary and avoid using it. The term "Output" in any information system may apply to either printer or displayed information. During the designing the output for this system, it was taken into consideration, whether the information to be presented in the form of query of report or to create documents etc.

4. IMPLEMENTATION

Implementation is the most crucial stage in achieving a successful system and giving the user's confidence that the new system is workable and effective. Implementation of a modified application to replace an existing one. This type of conversation is relatively easy to handle, provide there are no major changes in the system.

Each program is tested individually at the time of development using the data and has verified that this program linked together in the way specified in the programs specification, the computer system and its environment is tested to the satisfaction of the user. The system that has been developed is accepted and proved to be satisfactory for the user. And so the system is going to be implemented very soon. A simple operating procedure is included so that the user can understand the different functions clearly and quickly.

Initially as a first step the executable form of the application is to be created and loaded in the common server machine which is accessible to the entire user and the server is to be connected to a network. The final stage is to document the entire system which provides components and the operating procedures of the system.

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective.

The implementation stage involves careful planning, investigation of the existing system and it's constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

Implementation is the process of converting a new system design into operation. It is the phase that focuses on user training, site preparation and file conversion for installing a candidate system. The important factor that should be considered here is that the conversion should not disrupt the functioning of the organization.

5. ADVANTAGES

The combination of autonomy and knowledge provide adaptable systems. K knowledge discovered in data and then fed into agent can greatly enhance the self organization and learning performance of agent.

Data mining can greatly enhance agent learning and knowledge processing capability through involving Data mining algorithms in the building blocks of agent learning system. As a result agents can learn from the data and from environment before they make planning and reasoning decisions.

Data mining can enhance the agent capability of handling uncertainty via historical event analysis, dynamic mining and active learning .By mining agent behavioral data it's possible to reach a balance between agent autonomy and supervised evolution. Thus, the outcomes of self organization and emergence became much more certain controllable and predictable.

The rigidity and lack of exploration of deductive reasoning system is overcome. Rules are no longer hard coded into systems and there modification is only a matter of retraining.

Data mining techniques such as association rule extraction have no equivalent in agent systems. These techniques provide agent system the capability of learning discovering and probing and searching.

Real world database often contain missing erroneous data or outliers. Clusters can assimilate noisy logs so they became a part of a greater group, thus smoothing down differences while detecting and rejecting outliers.

Our approach favors the combination of inductive and deductive reasoning module. Agents can deploy deductive reasoning models to ensure system soundness using pre-processes data from inductive agents. This

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satisfies the application domains dynamic nature while the set of deductive results become more powerful and robust

6. FUTURE SCOPE

Open issues and questions still remain in this synergy. Research and exploitation are on the way to ensure better, tighter, and more organized system integration. Open issues that still require resolution include:

- Foundations, including methodologies, formal tools, and processes for supporting the integration of agents and DM from multiple dimensions.
- Formulation of formal methodologies, languages, and notations for agent mining.
- Building trust, reputation, privacy, and security for agent mining systems and making sure the systems and results are sound and safe.
- The development of an analytical methodology for agent retraining.
- The development of a methodology for evaluating agent mining systems efficiency, including individual unit performance and the performance of the system as a whole.
- Employing various distributed computing techniques to agent-based distributed data mining, such as the peer-to-peer model.
- Measurement of gains achieved by the agent mining system for decision making, and so on.

Data mining is a mature, widely accepted field while multi-agent systems are gaining ground steadily. Agent mining seems well poised to proceed from the stage of prototypes to the development of successful systems, case studies, and applications for both professionals and common users. The remaining open issues in the integration of the two technologies represent a fertile ground for research.

6. CONCLUSION

This paper describes our work to date on an agent-based approach to distributed knowledge discovery. We are currently investigating the application of RSA algorithms to data-mining tasks, and plan to adapt the selected RSA algorithm to work as an agent. We have to decide how the agents will co-operate, and to produce a user interface that will allow a human to interact with the agents.

A considerable number of issues have been raised during this work. For example, if agents interact during learning, some agents may be forced to wait while agents are still performing discovery. If agents interact upon completion of learning, knowledge integration may be computationally intensive. Another question is how agents should be selected to work on a given discovery goal. This might be addressed by the work on Site Description Languages (Levy, Sagiv & Srivastava, 1994).Our long term goal is that agent-based knowledge discovery will allow distributed databases to be mined in a distributed manner: maximising the usage of distributed computing resources, and minimising the network traffic.

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