Research on Network Security System Detection Based on Mysql

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Abstract: Mysql Network Database Has the Characteristics of Complete Functions, Simple Operation, High Management Efficiency and High Running Speed, So It is Widely Used, Which Also Puts Forward High Requirements for Security. Mysql is the Most Popular Open Source Sql Database Management System, Mysql Software is an Open Source Software, "Open Source" Means Anyone Can Use and Change the Software. the System Enables Users to Realize Real-Time Detection of Network Security through a Visual Interface, and Records Relevant Information of Intruders for Tracking and Investigation. as a Heterogeneous Open Source Relational Database Management System, Mysql Network Database Uses a Structured Query Language for Database Management. for Online Monitors, They Usually Run Continuously for a Long Time, the Amount of Data is Generally Huge, and the Operating Parameters Need to Be Modified in Real Time during Process Control. Therefore, How to Manage Data Files, Operating Condition Parameters, and Related Information Becomes Particularly Important.

1. Introduction

The Problem of Network Security is Becoming More and More Serious, and the Research on Network Security is Becoming More and More Important. in Order to Effectively Prevent Attacks on the Network, It is Necessary to Capture Data Packets in the Network and Analyze Their Characteristics So as to Apply Them to Network Testing, Network Security Monitoring, Network Load Monitoring and Effective Prevention of Network Attacks [1]. with the Rapid Development of Information Technology, the Amount of Data Accumulated by Various Organizations is Increasing Rapidly. Database Management System (Dbms) is Widely Used in Various Information Systems Such as Electronic Commerce, Social Networks, Portal Websites and So on to Manage Massive Data [2]. Mysql is the Most Popular Open Source Sql Database Management System, Mysql Software is an Open Source Software, "Open Source" Means Anyone Can Use and Change the Software [3]. Mysql Server Was Originally Developed to Handle Large Databases. Compared with Existing Solutions, It is Faster. over the Years, It Has Been Successfully Used in Many Demanding Production Environments [4]. Mysql Network Database is a Heterogeneous Open Source Relational Database Management System. Mysql Database Uses Structured Query Language for Database Management. Mysql is Popular Because of Its High Speed, Reliability and Adaptability. Mysql Can Provide a More Secure Network Environment for Enterprises. after the System is Installed on the Server of Local Area Network, Network Security Detection and Real-Time Alarm Can Be Realized Simply and Quickly [5].

Because Mysql Network Database Has the Characteristics of Complete Functions, Simple Operation, High Management Efficiency and High Running Speed, People Can Make Programs Using Mysql Database through Multiple Languages, Especially When Used in Conjunction with Php, and Its Application is Especially Popular [6]. Although Mysql Has Been Continuously Developing, Mysql Server Has Been Able to Provide Rich and Useful Functions [7]. It Has Good Connectivity, Speed and Security, Which Makes Mysql Very Suitable for Accessing Databases on the Internet [8]. Since Dbms Stores the Core Data and Personal Privacy Data of an Enterprise, How to Ensure the Security of the Database Has Become an Important Issue. in Recent Years, Attacks on Databases Have Emerged One after Another [9]. Many People Feel That Mysql Network Database is a Very Suitable Tool to Manage Content without Transaction Processing. the Adoption of Open Source Databases Has Become a Trend. for Example, Many Small, Medium or Large Website

Database Servers Choose Mysql Database [10]. for the on-Line Monitor, It Usually Runs Continuously for a Long Time, and the Amount of Data is Generally Huge, and the Operating Parameters Need to Be Modified in Real Time in the Process Control. How to Manage the Data Files, Operating Condition Parameters and Related Information is Particularly Important.

2. Account Security Check

Before Sql Statements Are Run, They Need to Be Compiled and Optimized. Therefore, for Frequently Used Queries, If They Need to Be Recompiled and Optimized Every Time, Precious Cpu Time is Wasted. Because Mysql Does Not Fully Conform to Sql Standards, Testing It with Interactive Sql Cannot Guarantee the Complete Execution of the Test. Once One of the Test Cases Reports an Error, the Test Will Be Terminated. Therefore, the Test Scripts Must Be Executed Manually in Turn, Which is Tedious, Heavy Workload and Unable to Carry out Automated Testing. Stored Procedures Are Executable Codes That Have Been Compiled and Optimized. the Server Can Call Them Directly without Doing More Processing, Thus Improving the Efficiency of System Operation [11]. Mysql Network Database is a Database Supported by Various Platforms. Its Regular Configuration Depends on Whether It Can Be Applied in Various States, So Users Can Implement Further Security Measures in Their Respective Working Environments. for Some Complex Work, Many Sql Statements May Be Needed to Realize a Complex Function, Which Can Be Realized by Stored Procedures and Stored in the Server.

The System Accesses and Operates the Database through the Capi Provided by Mysql, Which Solves the Unstable Problem of Interactive Sql Testing and the Infeasibility of Manipulating the Database through Nested Sql Statements in C Language. It Can Comprehensively and Completely Evaluate the Compliance of Mysql and Find Its Loopholes. in Order to Solve the Problems in the Field of Network Space Security, It is Necessary to Study the Existing Deep Learning Methods Based on Image Data and Redesign the Processing Methods of Discrete Data. Determine and Calculate Inspection Statistics. in the Hypothesis Test of Two Independent Sample Ratios, the Statistical Data Used Are:

$$e_j = -k \sum\nolimits_{i=1}^{n} f_{ij} \ln f_{ij} \tag{1}$$

Can Get:

$$W_j = 1 + k \sum\nolimits_{i=1}^{n} f_{ij} \ln f_{ij} \Big/ \sum\nolimits_{j=1}^{m} (1 + k \sum\nolimits_{i=1}^{n} f_{ij} \ln f_{ij}) \tag{2}$$

Replace data with calculations:

$$W_j = d_j \Big/ \sum\nolimits_{j=1}^{m} d_j \tag{3}$$

MySQL program consists of one or more modules. Like C language, one of the modules must be called main. The module can declare variables and assign values. The program finally gives the properties to be verified and describes them with CTL formula. The following is an example of MySQL program, including the main module and the properties to be verified.

```
MODULE main
VAR
request: boolean;
status: {ready, busy}
ASSIGN
init(status) :=ready ;
next(status) :=
case
reuqest: busy;
1: {ready, busy} ;
```

esac;
CTLSPEC
AG(request->status=busy) ;

Accounts are MySQL's simplest security measure. Each account consists of a user name, password, and location. The wide application of MySQL database makes the test of MySQL database especially important. MySQL release includes a set of test cases and programs to run it. These tools form the MySQL Test Framework, which provides a way to verify that MySQL's server and client programs are running as expected. In the production safety inspection system, the inspection data on the servers in different workshops need to be summarized to the general server of the group company so as to facilitate the company's competent leaders to know the operation conditions of equipment and the like in the production process in a timely manner. Access control is made up of many privileges, which are related to fully utilizing and operating the information stored in MySQL network database. The database application manages and maintains the data in the relational database through SQL language, including data creation, query and update, etc. Assuming that the user only wants to implement certain access to a certain database and does not access other databases, in this case, the same account should be set up with their own passwords. Functional requirements analysis includes text retrieval, which includes SMTP protocol content retrieval, FTP protocol content retrieval, and HTTP protocol content retrieval, and timely response, which mainly refers to hardware limitations.

3. System Internal Security Measures

The authorization table of MySQL network database provides convenient permission control for database access, but if the local user has read permission to the library files, the attacker can only copy all the database directories and save them in the data directory of his computer to obtain all the information in the database. The ultimate goal of the system is to enable users to input information they think sensitive to retrieve the content of application layer protocols, and to report to the police in time if sensitive information is found. Under normal circumstances, MySQL network database uses hash algorithm to encrypt sensitive data. According to the technical principle of logging in the database itself, the INSERT, UPDATE and DELETE operations to synchronize the data table are recorded by triggers to generate corresponding SQL statements and then execute the corresponding SQL statements in sequence on the group server. There are a lot of data stored in MySQL applications. If the user only wants to encrypt a small amount of data, such as the login password. These passwords cannot be set in clear text, and similar contents need to be stored in the database in encrypted form [12]. Whether the machine where MySQL network database is located is the first issue. If the host computer is not secure enough to be accessed by attackers, then the security of MySQL network database is also a castle in the air.

There are various MySQL files in a MySQL network. These files have different security levels and different protection requirements. The higher the security level, the stricter the protection requirements. In order to implement the decision-making of the decision-making level, it is also necessary to have a management level that manages the daily work and an implementation and maintenance level that is responsible for implementing safety plans and decisions. This forms a hierarchical information security organization under the direct leadership of the chief information officer. the security organization includes an organizational decision-making layer, a management control layer and an execution and maintenance layer as shown in Figure 1.

MySQL Test Framework provides test methods and test cases for MySQL tests. The test items often contain multiple small test items. Sometimes we do not need to test the whole large test item every time during testing. The score comparison of retrieval results is shown in Figure 2.
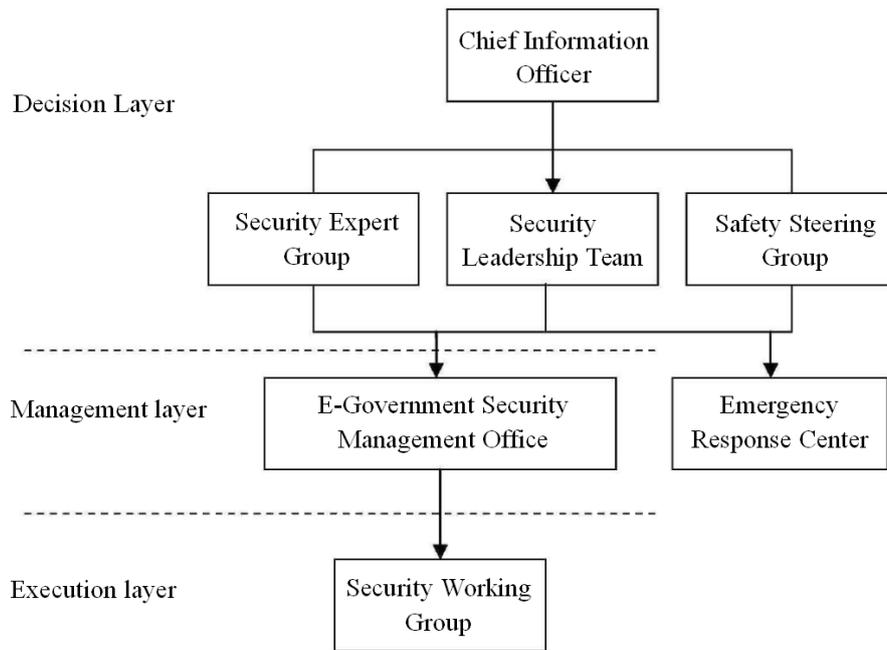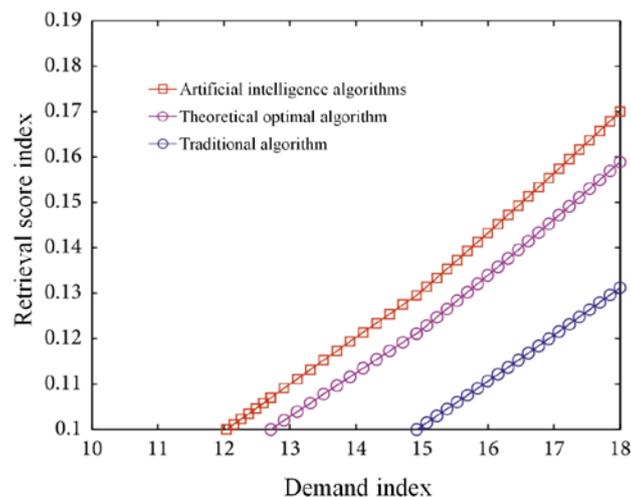
Fig.1 Hierarchical Information Security Organization

Fig.2 Score Comparison of Component Retrieval Results

DCS MySQL Test Suit implements automatic testing of MySQL through MySQL C API, verifying whether MySQL complies with syntax rules, access rules and definitions in SQL92 standard, and whether MySQL processes SQL statements according to relevant mechanisms in SQL92 standard. After capturing data packets, all data packets are analyzed, starting from the link layer, then the network layer, then the transport layer, and finally the application layer. Establish a backup database as a buffer between the two processes of test case splitting and automatic combination. The database is used to store and record test items obtained by splitting test cases so that these test items have unique numbers. The primary key should be unique by default, i.e. the value of the primary key cannot be duplicated, and the uniqueness cannot be violated by insertion or deletion. Meanwhile, the modification of the referenced primary key should also be constrained by the foreign key. In the protocol analysis module, relevant data packets are saved to the text file according to the type of application layer protocol. This module is to save the contents of the text file to the database for query by the response module.

4. Conclusion

The rapid development of network information is a double-edged sword. On the one hand, it

provides convenience for the vast number of network users, strengthens the cooperation between enterprises, and creates benefits for the national economy. On the other hand, it also brings a series of problems. The application software developed under the environment of C++Build6.0 can not only display the monitoring data online but also display the related historical data from the database via MySQL database. The small test items in the large test items can be separated from the test cases, and then the required small test items can be combined to form new test cases according to the test requirements for testing. Although many enterprises have set up a regular inventory system for fixed assets, which takes stock on time, it is often a mere formality and does not play a role in checking the use of assets and cleaning up assets. In the development of production safety inspection system, trigger can be used to realize data synchronization of application network topology which cannot be met by database multiplexing technology. MysQL Server has improved its caching mechanism. If you need to deal with repetitive tasks that require checking, looping, and multiple statements without user interaction, you can use stored procedures stored on the server to complete them..

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