

Research on bank information management mode under big data

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Abstract. With the rapid development of information technology, the application of big data has penetrated into various fields. In order to analyze the information management mode under the background of the development of big data, this paper introduces its operation process and related models. On this basis, the management system database is designed based on the big data platform to improve the bank's customer information management data, realize customer information management and improve the bank's information management ability.

Keywords: Information management, System construction, Bank management.

1. Introduction of big data

Academia and industry have been discussing the definition of big data, but the concept of big data has not yet formed a completely unified definition. At first, the concept of big data was defined from the perspective of large amount of data, but with the increasing application scenarios of big data and the continuous development of big data processing technology, the concept of big data has developed into a comprehensive concept including data volume and technology. In McKinsey's report big data: the next frontier of innovation, competition and productivity, it is mentioned that big data is a data set whose data volume exceeds the acquisition, storage, analysis and management ability of traditional information technology software and database management tools in a reasonable time, and specific technology is required to complete its collection and application.

2. Importance of big data development

The world is in the era of digital economy, and data has become an indispensable key factor of production. At the Fourth Plenary Session of the 19th CPC Central Committee, data was defined as an important factor of production that can obtain new production value and revenue for the first time. Using and attaching great importance to data has become a consensus all over the world. At first, big data was only used in the Internet industry. Since then, big data has gradually expanded to finance and trade, health care, manufacturing, government governance and other industries. At present, the application scope of big data is more and more extensive, and has gradually moved forward to various fields of life.

3. System hardware design

With the development of big data, big data has become a leading technology to promote development. It has significant significance in promoting the development of science and technology and social progress. By analyzing behavior data, mining its laws and applying it to the field of life, we can improve people's living standards and scientific and technological progress. Therefore, this paper applies the big data platform to the bank information management system in order to improve the level of information management and provide new ideas for the management of banking information system.

3.1 Chip slection.

Chip is the basis of the whole system operation, improve the operation mode and solve the problems of system jamming. This paper selects Hadoop chip and uses distributed computing to derive HBase, hive and other big data components. Hadoop has these following advantages: capacity expansion. Hadoop distributes data and completes computing tasks among available computer clusters. These clusters can be easily extended to thousands of nodes; The cost is low. Hadoop uses ordinary cheap machines to form server clusters to distribute and process data, so that the cost is very low. High efficiency. Through concurrent data, Hadoop can dynamically move data between nodes in parallel, making the speed very fast. Reliability, which can automatically maintain multiple copies of data, and automatically redeploy computing tasks after task failure. Therefore, Hadoop's ability to store and process data by bit is trustworthy. The chip operation mode is as follows.

This chip takes Hadoop as the core. Because Hadoop has the above advantages, it is more conducive to the system to build a big data platform.

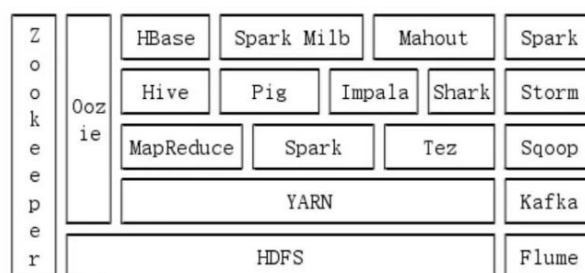


Fig. 1 Chip operation mode

3.2 Web integrator

Integrator is the most important hardware in information management. The web integrator designed in this paper uses B / S structure to develop and maintain the application program at the front end of the system. Various information data can be integrated for unified management.

4. System software design

4.1 Function management module design

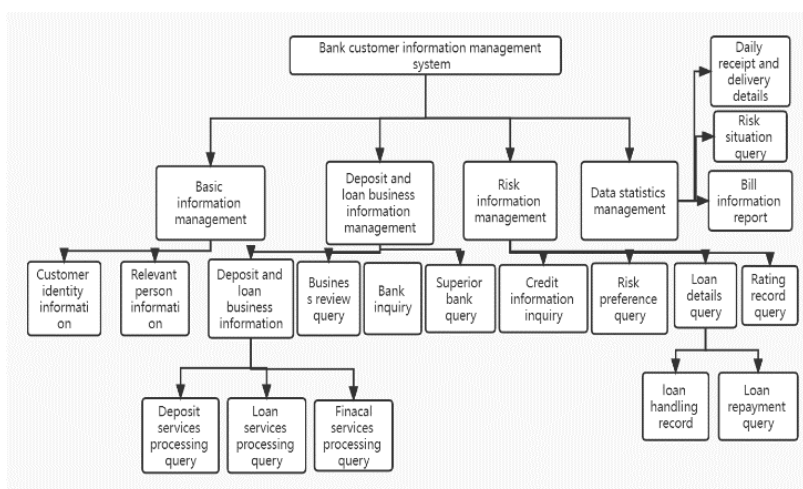


Fig. 2 Customer information function management module

The customer information management system of this paper designs four basic sections: customer basic information management section, customer deposit and loan business information management section, risk information management section and data statistics management section. The customer basic information management section includes the input, query and modification of customer

identity information. The deposit and loan business segment include the customer's previous deposit and loan business information in the bank. The risk information section includes customer risk preference information, rating records and credit information. The data statistics management section includes loan receipt and delivery details, statement of flow information and daily receipt and delivery details. The specific modes are as follows:

4.2 Design management system database based on big data platform

After the design of the function module above, this paper will further design the management database, integrate the customer information data, and design the application data structure suitable for the bank's operation requirements according to the bank's information processing requirements. Based on the big data platform, this paper reduces redundant information data and shortens the length of database data information. Due to the large number of database related data and information elements connected with each other in the conventional AP system, the data and information processing is not timely, and the management effect will decline. Therefore, this paper standardizes the design of the database, fully considers the relevance of information, and avoids the situation of repeated data entry in the big data platform. The details of some codes in the overall design of the database are shown in Table 1.

Table 1. Overall database design

Lib Customer information	Customer basic information base
Lib Business information	Business information base
Lib Risk management	Risk information management database
Lib Daytrademanagement	Daily transaction information management base
Lib UniversalGrammar	General database

As shown in Table 1, this paper refines the database and classifies each data, so that managers can clearly get the information in the database and improve the function of real-time management of customer information. Based on the designed database, the customer information in the database is managed with the help of big data platform. In the big data platform, with the help of its distributed file management system HDFS, the customer's overall risk information data is processed. The program needs to write all customer information data at one time, and then adjust the consistency of the information to provide a data basis for subsequent management. The flow is shown in Figure 3.

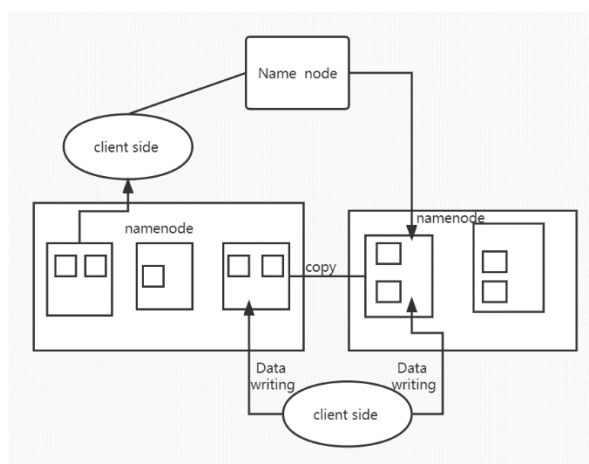


Fig. 3 Customer information management processing of big data platform

4.3 Customer information management

In order to realize bank customer information management, this paper adopts the three-tier service structure of B / S architecture, and adds Middleware in client and server. With the progress of middleware, the management system can be standardized, and the data information can be processed

through the information layer, data storage layer and logic layer. The processing flow is shown in Figure 4.

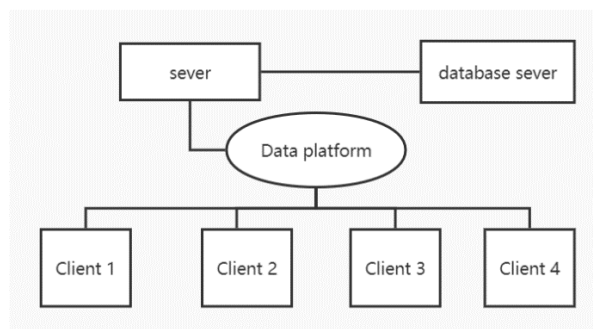


Fig. 4 Processing flow

As shown in Figure 4, in the B / S mode, using big data as the basic platform, you can quickly connect the application with the database, and then complete the communication between data messages. This structure does not interfere with each other, and the access and execution of the database are more standardized to ensure faster information management, which is convenient to find data bugs and realize the information management of big data.

5. System test

In order to verify the availability of the information management platform in this paper, this paper constructs a virtual big data platform to test the system in this paper. In addition, this paper designs to observe the warning of the system when there is an obvious error in the input information of the system. The test results show that when there is a serious deviation in the information, the system can give early warning in time to ensure the real-time transmission of faults and maintain the safe operation of the system.

5.1 Information management module test

Table 2. Information module test

Information source	Destinedion	amount of information (GB)	Migration time (S)	average speed (MB/mS)
Msql	HDFS	180	290	3.15
HDFS	Hbase	120	246	4.23
Msql	Hbase	50	90	3.65
Hbase	Msql	100	224	1.77
Kafka	Redis	70	124.8	4.64

As shown in the above table, in the process of customer information management and migration, the average speed is within 5.00 MB / MS and the migration time is within 300s, which can meet the needs of real-time information management.

5.2 Test result

Taking the customer data of a bank as an example (not involving privacy disclosure), this paper detects the number of errors in the customer information on the premise of the normal operation of the system, and compares it with the actual situation to detect the error information detection function of the system. The inspection results are as follows:

Table 3. Abnormal result detection

	Number of errors detected by the system	
Number of errors in basic customer information	510	510
Number of business information errors	112	112
Number of credit information errors	21	1

It can be seen from the table that the system can accurately identify the errors of basic information and business information. The main reason is that once such data is wrong, it will be relatively simple to identify. However, when the customer's credit information is entered incorrectly, the recognition accuracy is relatively low. Because the generation of credit data has a certain randomness, and the data performance is not significantly related to other relevant data, it is difficult for the system to identify when there is an error in credit information.

6. Conclusion

With the development of banking industry, the amount of customer information is increasing, and the value of customer information is becoming more and more important. The ability of real-time information management is poor, which leads to the poor ability of traditional information management. It adds a lot of workload to the follow-up customer information management. Based on this, this paper designs a customer information management system based on big data platform, which provides a good platform for customer information management by improving the operation mode in the system and improving the management ability of the system.

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