Design of Cloud Intelligence Logistics Management System Based on Big Data

Lijuan Ma, Lina Gao

Xi'an International University, Xi'an, Shaanxi, 710077

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Abstract: With the increasing integration of the world economy, the traditional logistics distribution mode shows the disadvantages of backward management, low efficiency and unshared information, so it is urgent to have an intelligent logistics management system with high efficiency, convenience, comprehensiveness and decision-making power. In this paper, a cloud intelligence logistics management system based on big data is proposed, which uses big data to optimize decision-making and cloud computing to share computing resources to improve logistics efficiency.

1. Introduction

With the advancement of globalization, the globalization of resource allocation is getting higher and higher, and the requirements for logistics and distribution are also getting higher and higher. In the massive, high growth rate and diversified information environment, the new processing model is used to achieve greater decision-making power, insight and more optimized processes, which is the top priority for contemporary logistics companies. Therefore, the development of cloud-based smart logistics management system [11] based on big data is the best solution for achieving more efficient and convenient logistics and improving core competitiveness.

2. Trend Analysis of Logistics Enterprises

In 2016, Alibaba Group's e-commerce turnover exceeded 3 trillion yuan, and its turnover exceeded Wal-Mart as the world's largest retail platform. This marks the beginning of the circulation revolution and will also fundamentally change the nature of logistics. From the "Double 11" packaging orders, the number of packages from 278 million pieces in 2014 to 467 million pieces in 2015, and then to 2016 has increased to 657 million pieces, service capacity from the initial congestion "explosion", Poor user experience has been transformed into orderly. Compared with 2013 "Double 11", the signing time for 100 million packages is only one-third of the time for signing in 2013. Compared with the "double 11" in 2015, the "double 11" package performance rate in 2016 increased by nearly a quarter [7]. Smart logistics technology is the key to these changes.

Under the pressure of fierce market competition, the profits of low-end services will inevitably become thinner and thinner. According to the different logistics structures, scales, and requirements of various industries, the cost, speed, and service of logistics also vary greatly. This must accelerate. The segmentation of the logistics market will also promote the third-party logistics to provide high-end logistics services, professional solutions and operating modes.

3. System Function Analysis and Module Design

Big Data Cloud smart logistics management model is to enter suppliers, inventory, fleet information into the logistics management system, and then upload this information to the big data information sharing platform, so that these resources are shared, so that different logistics companies can achieve information exchange, Resource Sharing. On the basis of resource sharing, the cloud computing platform is reused to provide dedicated decision-making solutions for different customer characteristics, thereby reducing the complexity of logistics management, improving efficiency, solving the drawbacks of poor traditional interoperability, and realizing resource utilization. The increase in the rate has reduced logistics costs.

The main task of the logistics management system [2] is to provide logistics companies with project management and day-to-day management, and to assist staff in day-to-day affairs management and personnel management, and have achieved the purpose of improving work efficiency, reducing operating costs and personnel costs. Strengthen the competitiveness of enterprises. Through this system, logistics company managers can view logistics-related business information at any time, such as relevant information on consignment notes and customer settlement. Secondly, real-time viewing of fleet conditions, vehicle information, driver information, company outlets, etc., while managing employee information. The system implements data mining [1] and statistical analysis in the registration and storage of large amounts of data information, so as to propose a reasonable logistics plan and realize an efficient and economical operation mode.

The modular design of each function of the system, the main module is divided into five modules of business management, financial management, basic data, SMS center and reporting center, in which business management in order to achieve efficient and efficient way of inquiries, with the most commonly used business as its Sub-module, which includes two parts: consignment note and customer statement; financial management includes only one sub-module of other receipts and payments; the largest one is the basic data module, which includes company network, customer data, vehicle file, and driver. 14 sub-modules, including archives, cover a wide range of information from company to customer, from vehicle to driver, etc. [9]. It is also the main source of big data information. SMS center includes: unsent messages, sent text messages and SMS templates. :

4. Detailed Design and Implementation of the System

Smart Logistics [13] integrates the sensor network, the Internet of Things, and the existing Internet to realize visualization, networking, automation, and controllability of logistics management [4] through scientific, accurate, and dynamic management, in order to achieve resource utilization. And raise the level of productivity, thereby creating a more comprehensive social value [3]. How to realize logistics intelligence [6], improve the efficiency of logistics companies, discover new profit opportunities, and need to discover and mine [16] preferences and insights of logistics customers, and this information have the characteristics of large amounts of data, diverse types, and complex structures. Therefore, extracting massive information from big data technology is the best way to solve this problem.

The business management module is the most basic function for real-time business processing and inquiry, and it is also the most commonly used function. Therefore, the module is placed in the most noticeable first item in the navigation bar. The module includes the consignment note and the customer settlement note.

The business management module mainly implements the information of the shipping order, selects the shipping method, confirms the consignment number, date, etc., as well as the information of the customer settlement bill, which facilitates timely checking of the settlement date, amount, etc., and its module interface information.

The basic data module [5] contains comprehensive contents. From the aspect of customer relationship, it includes information from the company's network to customer information. From the perspective of transportation, it includes vehicle files, driver files, transportation methods, vehicle types, etc. From the perspective of company management, it includes information such as employee files, agent files, fee types, cost units, and payment methods.

Considering space limitations, this article only describes the cloud calculator [15] code in the core cloud-brain system program [14] code in the cloud computing as follows: The server receives http data [8] and passes it to the C server. The result is converted into an xml format and sent back to the client. Server.c receives the data from the java server, calls the mpi program, and returns the result to the java server.

```
//------------- Send data to SERVER----------------
  Try
  {
      Socket skt = new Socket (InetAddress.getByName(null), 3000) ;//Create a / / socket
```

connection, the connection server is the machine, the port number is 3000

```
        System.out.println("Connect to Server "+skt);//Print prompt message
        OutputStream ostm=skt.getOutputStream();//Get output stream
        If(number==null)
        {
            Ostm.write("8". getBytes());
        }
    Else
    {
    Ostm.write(number.getBytes());//Write to the output stream as the current file encoding

    }
        InputStream istm =skt.getInputStream(); //Get input stream
        Byte[] info=new byte[512];
        Int num=istm.read(info); //Read the input stream into the cache
        System.out.println(new String(info,0,num)); //Output the input stream just acquired
        Ostm.close();
        Istm.close();
        Skt.close();
     }
    Catch(Exception exp)
    {
        exp.printStackTrace();
    }


    //--------------- send back to the client ------------------
    Try
    {
        PrintWriter oput=response.getWriter();
    Transformer tformer = TransformerFactory.newInstance().newTransformer() ;
    //Create an instance to convert
        Source scre = new DOMSource(document) ;// XML source file to be converted
        StreamResult sresult = new StreamResult(oput) ;
        Tformer.transform(scre, sresult) ; //Conversion
        Oput.flush();
        Oput.close();
     }
    Catch (Exception ex)
    {
        System.out.println(ex);
    }
```

5. Conclusion

This system introduces big data technology and smart logistics [12], analyzes its characteristics, and links with the status quo of modern logistics, and proposes a design scheme for cloud-based smart logistics management system [10] based on big data. The design of the scheme is first. Determine the framework of the entire management system, analyze its functional implementation according to the module, so as to realize its logistics management system, and finally describe the implementation process of data analysis [17] in detail. Through the actual operation, the interface of the system is simple and intuitive, with detailed information and convenient operation, which can greatly improve the logistics efficiency and optimize the logistics process.

Acknowledgements

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