Design and implementation of logistics public information platform

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Abstract. Targeting with problems of high total cost of social logistics and low level of modern logistic service in China，this paper develops public logistics information platform. The system structure of logistics public information platform is given. The information service interface, a third party integration and expansion as well as the data warehousing and mining techniques are described.

The platform uses the B / S structure, users do not need to install it , and when they just open the browser, the system can be used , which avoiding the trouble caused by system upgrades.

1 Introduction

Logistics public information platform is a virtual open logistics network platform, which is based on a computer, network, communication and other modern information technology. It is an information system combined with the parties of the logistics activities, which participated by government departments, logistics park, logistics companies, manufacturing and other parties, and it can provide logistics information, technology, equipment and other information platform resource sharing services. [1]

May 28, 2013, Alibaba Group jointed third-party logistics companies (such as SF, three ,one and so on), and related financial institutions, and announced that China's smart logistics backbone network was officially started. Rookie Network Technology Co., Ltd. , which is jointly organized by the cooperation of the parties, was formally established. [2] . The same construction of public logistics system as the rookie network formed logistics industry cluster effect.[3] It not only can achieve integration of resources, but also it can accelerate the pace of China's logistics industry information technology.

At present, the situation of the logistics information for China's medium-small enterprises is not optimistic, its total cost is high, logistics services information technology and intelligence level are both low. This paper analyzes the current situation of logistics information and existing problems, and in order to meet the user's needs and provide high-level services, The logistics public information platform for medium-small enterprises is developed by the use of advanced technology. The platform put the Information chaos and the flow difficulties of the Information between regions as the focus. At the same time, Fewer services and relatively outdated technology etc. were solved. The system uses the B/S structure, users do not need to install it , and just need to open the browser to use it, which would also avoid the trouble caused by system upgrades.

2 The main functions of logistics public information platform for medium-small enterprises[4]-[6]

The main task of logistics public information platform for medium-small enterprises is to effectively integrate for their information resources,not only to make the information smoother and to share the resources among the various departments, but also to optimize the supply chain and to improve work efficiency, in order to provide faster, cheaper logistics services for logistics services demand side. The system structure is shown in Figure 1. The platform has the following features:

2.1 The information services for users

The Information service functions for users mainly have information receiving, messaging,

searching, filtering, collection and personal information management, etc., which are the visual parts of the system. For the user's use and experience, they ultimately provide users all the functionality needed to meet the needs of users.

2.2 The core services

The core services can provide the services including all services and extensions to other subsystems. The expansion subsystem is a subsystem of third parties, which gets its own value-added services through the extensions interfaces using the core services subsystem . The core services are divided into three layers to achieve:

1) Basic service

The basic service can analyze the information, provide and implement a callable service and interface for other subsystems. For example, information exchange service interface, Information searching and filtering service, message transmission and reception services.

2) Extended data services

Extended data services includes data conversion, data mining sub-layer, multi-dimensional data interfaces, data warehouse management interface, decision-making data subscription interface and data mining interface. By using data warehouse and data mining to increase the types of services and new high-level services, users and third parties can use this function to achieve business functions and decision support. When the system can not meet the demand, the system can be extended, and then integrated into existing systems. These can not only shorten the development cycle, but also make the investment required small.

3）Data services

Data services includes basic data service interface, information storage and information backup.

2.3 Third-party subsystems

Third-party subsystems include third-party operators, consulting analysis company and third-party service providers. Using the extended interfaces and services provided by the core service subsystem, the value-added services and functions are constructed. These functions, as part of the system, are integrated into the overall system. Such systems not only provide business value for operators, but also to provide business opportunities for third parties.

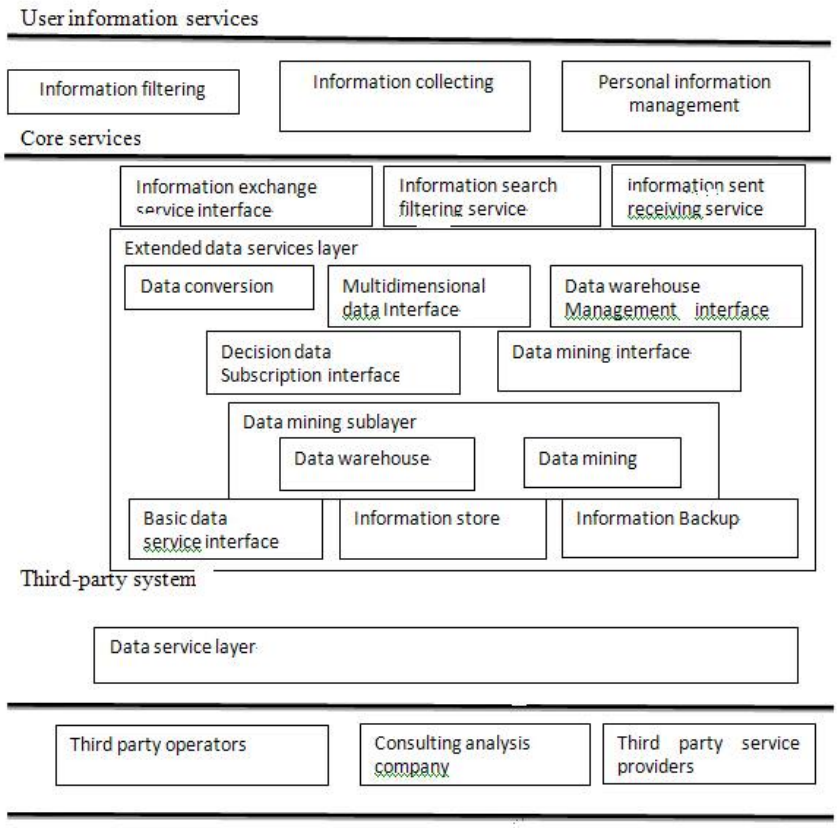


Figure 1 Schematic diagram of the system

3 Key Technology Analysis

The features of the system designed is the information service interface, extensible architecture, third-party integration and expansion as well as data warehouse and data mining etc..

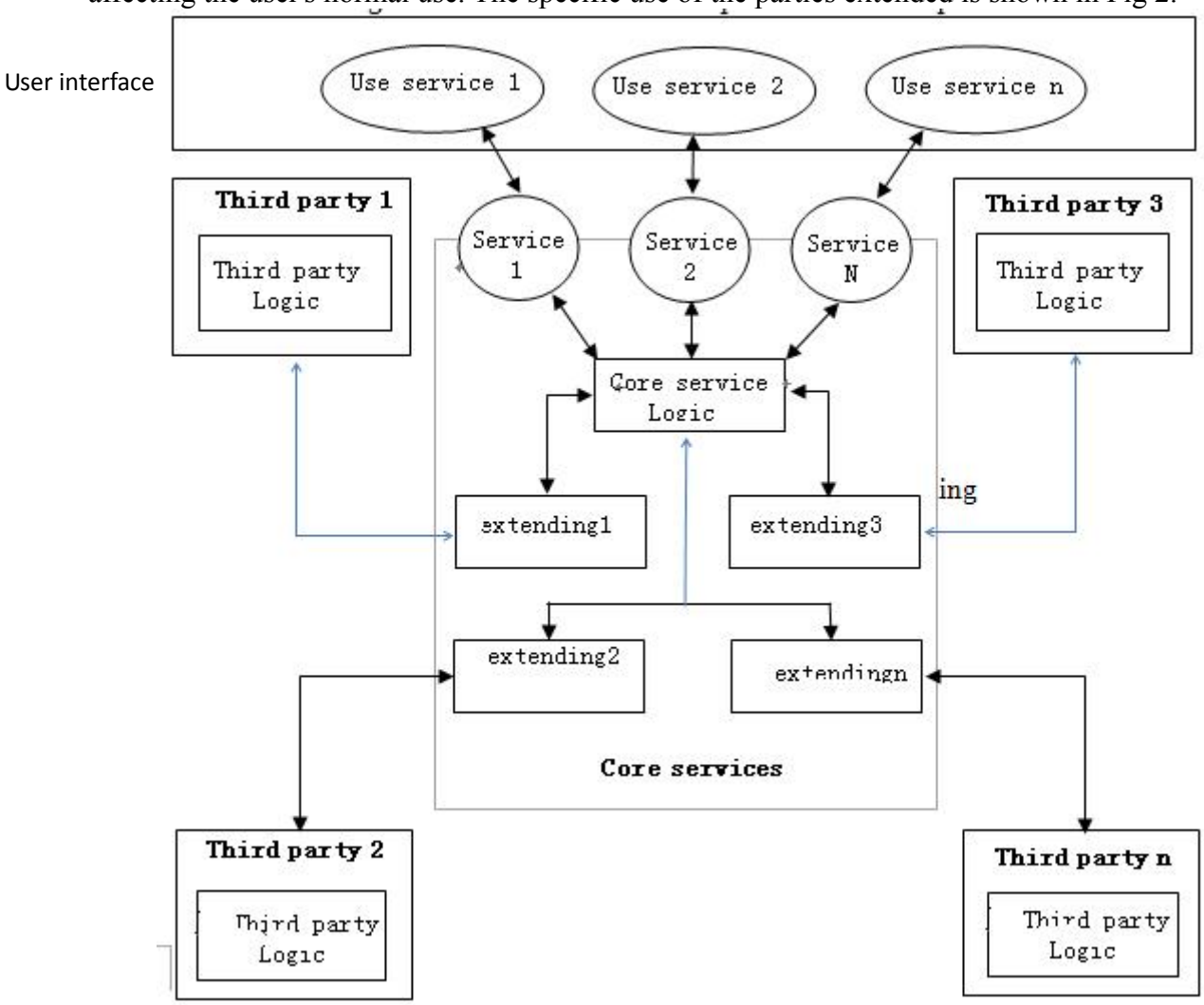
3.1 Extensible architecture

Using extensible architecture, the system has maximum flexibility, but also greatly enhance the life cycle and the possibility of redevelopment. If the existing system can not meet the needs of users, the secondary development or re-development can be implemented. This will result in a waste of manpower, material and funds. Of course, for the new system developed, it will take some time to be normally used. that inevitably causes some economic losses. If the extensible architecture is used, when the system can not meet the demand, the system can be extended, and then integrated into the existing system, which not only shorten the development cycle, and investment required is relatively small.

Expansibility also enables third parties to develop and integrate, such systems not only provide business value for operators, but also provide business opportunities for third parties.

3.2 Integration and expansion of third party

Using the various interfaces and services provided by the system, users can develop a variety of plug-ins to enhance existing functionality of the system and add new services. Third parties can also develop their own plug-ins and integrate them into the system, the system and extensible plug as a whole can provide the services for users. The various expansion is transparent to the user, without affecting the user's normal use. The specific use of the parties extended is shown in Fig 2.



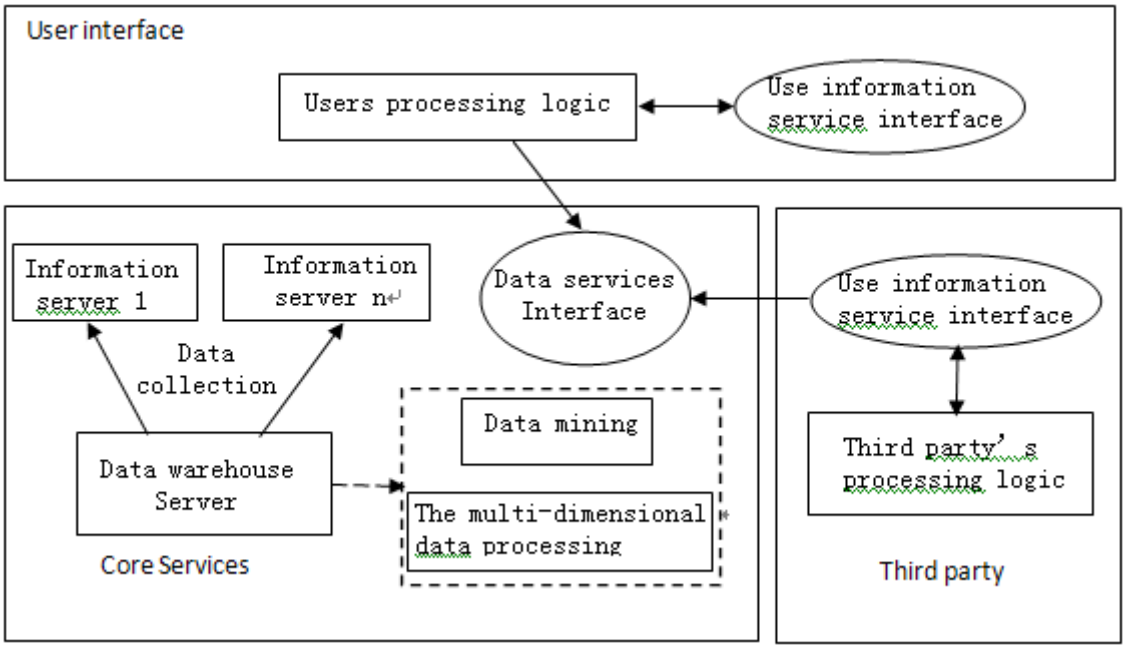


Figure 3 Data mining calls

3.3 Data warehouse and data mining

Using the data warehouse and data mining, the kind of service provided by the system and a new high-level services will be increased, users and third parties can use this function to achieve commercial functions and decision support. Through data mining, the system provides the advanced services. The users and third parties can use these services through a standard interface, shown in Figure 3.

3.4 Information services interface

The information service interface of the system can be implemented using a Web Service and used as open, cross-platform, cross-language. For third party requires the new existing systems developed, no matter any platform, development language, this service can interact to achieve the flow of information.

4 Conclusion

The logistics public information platform for medium-small enterprises is not just a collection of concept, but it is an extension of the existing cross-organizational information technology, the system has been put into use, the platform for raw data obtained through data mining, data analysis, and standards-based integration, to provide services and support for the logistics business for SMEs. But this design there are still insufficient data to explore, such as the industry is insufficient information at this stage of excavations, senior decision-making service provider is not perfect, all of which need to be in the future continue to improve.SMEs logistics public information platform is not just a collection of concept, but it is an extension of the existing cross-organizational information technology, the system has been put into use, the platform for raw data obtained through data mining, data analysis, and standards-based integration, to provide services and support for the logistics business for SMEs. But this design there are still insufficient data to explore, such as the industry is insufficient information at this stage of excavations, senior decision-making service provider is not perfect, all of which need to be in the future continue to improve.

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