Abstract

Under the background of the requirement of high availability and high performance on the basis of the large-scale distributing type application in agriculture, makes more researches on the component cluster's application management, deployment management and performance management. Based on above researches, completes a developed platform for Electronic Agriculture with compatible J2EE standards. The platform supports the development, deployment and management of Electronic Agriculture, making information exchange among different system possible. The integrated frame in the platform has satisfied each level personnel's demand in the field of agriculture, which helps to solve the problem of the bottleneck of the scientific and technical resulting in the agricultural production process and propagate.

1. Introduction

In scale agricultural production, adopting intelligent management software may adjust the production flow. Because of above condition, more and more agricultural managers begin to pay attention to the validity, elasticity and extensibility of intelligent agricultural application system which not only can be controlled and managed, but also can reduce the cost of safeguarding and updating system. The agricultural affair system of electron needs supporting and stepping the platform to operate and makes the application software on different operating systems integrated each other. With the gradual application of intelligent agriculture, the different of network (different hardware platforms, different operating systems and database systems) dashes for ward day by day. Among the traditional distributed system of intelligent agriculture (client and server), it can provide the ways to solve the problems of stepping platforms and unreliable transmit adding a layer of application which includes the application of transaction logic and the selecting Proxy of database[1].

2. Structure of the applied Electronic Agriculture

Structure of the applied Electronic Agriculture is according to J2EE standard for Sun company in the paper. It is a multi-level Agriculture of the next generation which is set up in internet, and it can customize intelligent agricultural systems. The structure has integrated basic data, such as agricultural information resource, model and knowledge, etc. It uses Web Services based on XML, which realizes the Information transmission on different network structures. The dividing and disposing of all functional module are according to components, which are convenient for different users to come to use. figure 1 shows the structure.

Figure1 Structure of the applied Electronic Agriculture

Data resource layer—Including knowledge, models and information resources, they are the whole system datum source of structure.

Components management layer—It is convenient to manage components for developers, and describes every component’s function, interface, realizing language, edition, register information, date, etc. According to interflow interface standard, developers carry on managing and maintaining by using third party components.
Applying service layer—System managers or the knowledge engineers utilize it to set up agricultural affair frame model of electron and install the agricultural affair system of electron.

3. The assembling and deploying of the applied Electronic Agriculture

The function component container of the applied Electronic Agriculture framework includes market forecasting components, knowledge expressing components, reasoning components, data mining components and database management components, analyzing and decomposing them into reusable and replaceable small function component. Assembling single intelligent agricultural application system models on the base of function component container of framework, dynamic deploying and user-defined is required. In building distributed cooperation system, dynamic deploying should be made in bottom function components to make it support the components of team organization, correspondence and plan, communication and alternation. And an open flexible system is required.

Assembling intelligent agricultural application system using function components is the important model of distributed intelligent agriculture application framework. In many applications, an intelligent agricultural application system that supports B/S form is enough. However, if dynamic deploying and easy updating, use-defined intelligent agricultural application system is required, a dynamic assembling model of black box style must be made for this assembling. In this model, we made a system deploying information component that includes all function components of use-defined and interface component information in order to load appropriate components in the next run. If some component must be dynamic plugged in, the status messages in the run of component must be saved. Each component will be validated by validation component before assembling. The platform will be debugged by debugging component. Building an intact and flexible component customization mechanism to facilitate users. Building an intact, flexible, easy management components container to make the components easily to manage in browsing, orientation and saving.

4. Conclusion

The Platform for Electronic Agriculture is a universal framework that integrates the brand-new business and technology model, its core concept is “regard software as server”, taking the technique of Web Service to integrate effectively all kinds of the Internet resources of agricultural into special intelligent agriculture application interface.

The advantages of the Platform for Electronic Agriculture that based on application server is to put some complicated business in the network, not laying before the customer.

In addition, in the large scale agricultural production, business data need be gathered gradually together from everywhere. But it is still a prevailing agricultural production mode which convey business data from a certain business segments to other departments repeatedly in the written form. This repeated job strengthens the work of the business department and influence working efficiency to a certain extent. For realizing the sharing of the information at the greatest degree, fully embodying the real-time quality of the information, strengthening the standardized management of data and information circulation, realizing agricultural data information issue and the sharing of information, structuring a safe effective standardized agricultural integrated service and management frame which is easy to operate and classify the information. It regards managing in authority as foundation and core, constructing a unified distributed intelligent agriculture application system environment, to satisfy the basic demand of intelligence determine and the daily information issues and visit, and adopt the data base interface in common use and database container technology to manage the business data in unison[2].

The intelligent agricultural application system that based on application server has broken the technological barrier of the agricultural software. Basic agricultural research institutions and developers have an opportunity by way of assembling the distribute component to develop agricultural software under a unified standard rapidly and effectively. The agricultural intelligence decision system of our country starts relatively late, the research of the distributed intelligent agriculture application system offers the new opportunity for development of our country's modernized agriculture.

5. References