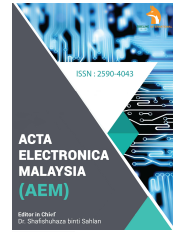


ZIBELINE INTERNATIONAL
PUBLISHING

ISSN: 2590-4043 (Online)

CODEN: AEMCDV

Acta Electronica Malaysia (AEM)

DOI: <http://doi.org/10.26480/aem.02.2020.31.34>

RESEARCH ARTICLE

RESEARCH ON MULTI AGENT DISTRIBUTED APPLICATION SYSTEM BASED ON WWW PLATFORM

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ARTICLE DETAILS

Article History:

Received 05 March 2020

Accepted 08 June 2020

Available online 03 July 2020

ABSTRACT

The market economy of our country has been developing continuously since the reform and opening up. With the improvement of the mechanism and the deepening of the reform, the competition among enterprises is becoming more and more competitive. The core of competition among enterprises is the competition of talent resources in essence. It can be seen that only with high-quality talent team the enterprises can remain invincible long throughout the hundred years of enterprise development history. WWW platform, multi agent distributed application system and other related concepts were introduced firstly in this paper. Then the development method was described. The security of WWW services was discussed in the end, which hoped to provide reference for researchers in related fields.

KEYWORDS

WWW platform, multi agent, Distributed Application System.

1. INTRODUCTION

With the maturity of network technology, the development of enterprises has been a good opportunity. The instant and convenient communication and exchange can be achieved between the various departments within the enterprise and the different enterprises with the aid of the developed network technology, which is of great benefit to each other's business activities. It is possible to integrate the various enterprises in the supply chain in the past and the enterprise groups which exist in the form of partner. However, every department in the enterprise and the computer equipment and the system which are used by everyone are different. So it is a very difficult task to integrate them together to form a relatively complete subject.

The multi agent distributed application system based on WWW platform has a very practical significance in this case. Distributed technology based on WWW platform is a loose coupling technique (Bi et al., 2015). For example, party A and party B belong to the link chain. Though they are in a state of combination, their position is relatively independent. Regardless of party A or party B can be better implement the mechanism in accordance with their own wishes in this technology but does not affect the normal operation of the entire application system.

The research of multi agent distributed application system based on WWW platform has become a hot spot in the industry because of this. This paper aims to elaborate its design and development method by analyzing the related concepts of WWW platform to hope to integrate a set of application system of the relative bending needle.

2. STATE OF THE ART

2.1 WWW platform

WWW is the abbreviation of the global information network that is Wide Web World, and is often referred to as Web in the literature. This kind of service can be divided into client and server. The server is a program and the user can access the relevant data on the server through their own client. Users use the client browser generally and the data are also shown in the form of the page. In short, the composition units of the WWW platform are super texts and they connect with each other these through a certain form so that the user can access the system through the Internet (Wang et al., 2007). All things are considered as resources in this platform. Of course, this kind of thing can become the resources in the system on the premise of playing a role. These resources are not the same, but they still need to set a uniform resource identifier to identify them so as not to confuse them. There is a hypertext transfer protocol between the user and the developer of the system, and all the resources in the system are transmitted through this protocol. Users get a link only and obtain the resources after opening the link. Therefore, this resource is of the nature of the network.

The WWW platform is a special object deployed in the Web above essentially from a simple network technology point of view this problem. It has a lot of operation interface, and the user can access the operation through a certain message mechanism. The WWW platform has the following five advantages from the perspective of external users. Good packaging is to show a relatively complete functional interface in front of the user, and all the original operations are covered. Loose coupling refers

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10.26480/aem.02.2020.31.34

to the user to use the process as long as no change in the interface, and the platform of all changes will not cause the entire program's paralysis as well as even users will not be affected. The other two are the specification of the use of protocols and highly integrated capabilities. Complete WWW platform requires a lot of thoughtful protocol to support its normal operation. The following table gives the protocol stack of the entire platform (Dai et al., 2012).

Table 1: The protocol stack of Web Service	
Tool	Layer
ESFL	Service flow
Static UDDL	Service discovery
Direct UDDL	Service publication
WSDL	Service description : -service implementation -service interface
SOAP	XML-based messaging
XML Schema	Data modeling
XML	Data presentation
HTTP, FTP, SMTP, MQ	Transport

2.2 Distributed technology

The performance of a computer is limited, and the service provided by it is limited. Therefore, it will be more or even thousands of extreme and linked together so that it can work together to form a super computer to achieve more complex services. This super computer is not real but virtual from external hardware. A virtual machine composed of a myriad of computers is able to combine the storage space of each computer, and to make a comprehensive use of the free time of each computer. Therefore, the super virtual computer can complete the task of large workload. It can be seen that the definition of distributed technology is not in essence, but only in the description of the nature (Dong et al., 2011). However, the definition of distributed technology from the point of view is not necessarily completely unable to fully express its characteristics. As a public knowledge, the distributed technology is produced in order to solve the problem of large scale. As a result, it is not concentrated on the physical structure, and the distribution of thousands of computers may be far apart. However, the computer can find a point because the operation environment of the computer is the same in essentials while differing in minor points. Distribution and heterogeneity are the two main characteristics of distributed computing technology from a more professional point of view.

Distributed system refers to the system that design a set of feasible software so that thousands of computer unified management and tens of thousands of computer and the management system as the main body using the characteristics of distributed technology. The whole system is not scattered but a whole in front of the users. In era of computer technology has just begun as well as development is not mature, distributed system is limited in the local intranet zone, which can use the server only file server and all can realize the sharing and file transfer in the same LAN environment (Yue et al., 2015). With the development of network technology and computer technology, especially the emergence of WWW platform, the distributed system began to move toward a new stage. Web is a distributed system based on the establishment and its basic point is the document.

There are four basis points of different distributed systems from the perspective of the development of distributed systems. Distributed system based file has been introduced previously. In addition to, there are three kinds of distributed systems based on object, Web and message as well as collaboration. The basic component of the distributed system based on the object is the object, which is not isolated and can be accessed from each other. This is achieved by interface with early establishment and different interfaces can be linked between the user and the server to constitute a protocol (Li et al., 2010). The difference between the distributed system based on information and coordination and the aforementioned two kinds of distributed systems is that it made calculated and collaborative aspects

separation of independent. Distributed system is a collection of many different processes and the calculation of the distributed system is composed of these different processes.

We should focus on the distributed system based on Web. WWW is one of the most important inventions in the field of computer, which has important significance for the development of distributed systems. Web itself is a distributed system based on documents and the world-wide-web is a very complex upgraded version of the system based on this system in essence. This distributed system with upgraded version contains a number of computers and servers, whose amounts are very amazing. The functions of Server and client computers are different and they fulfill their own responsibilities. The former is mainly responsible for the maintenance of a number of linked documents to ensure its normal operation and the latter's main role is to provide users with a platform to access these documents. The document is read by the server and transmitted through the transmission mechanism to the client computer and is known to the user from a deeper reason. Therefore, the document is to be transparent from the customer's point of view.

3. METHODOLOGY

The background of this project is the development of a sales enterprise in this paper. The company's leadership decided to enter the Web in view of the impact of the development of network technology to the sales industry is not small. Users can carry out consultations with the company through the Web page. Shopping requests and product maintenance can be achieved through the Web. In order to realize the idea as soon as possible, the company hired the relevant professionals to design a multi agent distributed application system based on the WWW platform after researching the decision. They hope this can not only find business partners, but also to get more customers as well as in maintaining customer relationship further.

3.1 Requirement analysis

Relevant experts think that they must take the following five points as the system expected to achieve the function if the sales enterprises want to really rely on the design of this system solve some problems after investigation and analysis of the actual situation of the company. The first is that the whole system must be completed on the basis of the Internet. As is known to all, the online sales system covers a very wide range and the main body of the coverage is more distributed than the physical. Therefore, enterprises must use the Internet cooperation and coordination mode in the business activities in order to achieve communication with other enterprises so that the whole system has a greater compatibility.

The second is that the design of the system must be able to be compatible with other systems. The enterprise can't have all the same system in the actual situation. In addition, the information architecture of each enterprise is different in the online sales system. It is not realistic to force enterprise unified information architecture because each enterprise has the status of equal in the system. The third is that the enterprise can't lose its independence after using this system. Although the online sales system establishes a communication platform between the enterprises, the enterprises can't become one completely. The related principles and the law of the original information system are likely to continue to be use. This should be taken into account in the design of the system and focuses on maintaining a balance between independence and unity.

The fourth is that the design of the system must be able to have good ductility. With the development of enterprises and the expansion of the market, the number of competitors and partners will be greatly increased. If the system does not have a certain carrying capacity and flexibility, these unexpected factors will cause the system to crash. The fifth is that the design of the system should have enough high security. Online trading is different from the line transactions, which has its own virtual nature. If there is no perfect certification system and the protection of the supervision mechanism, the online mechanism is bound to be a problem.

3.2 Overall structural design of the system

We can know on the analysis of the demand of the system that the purpose of this design is to build online sales application platform so that a user enterprise with high autonomy can realize automatic operation using a solution based on WWW platform of the multi agent distributed technology under the Internet environment. You can see according to the

figure that consumers do not need to understand the specific implementation details and development information and only need have a certain understanding on a common component interface so that you can use the Internet network server freely in the design of the overall structure (Wang et al., 2010).

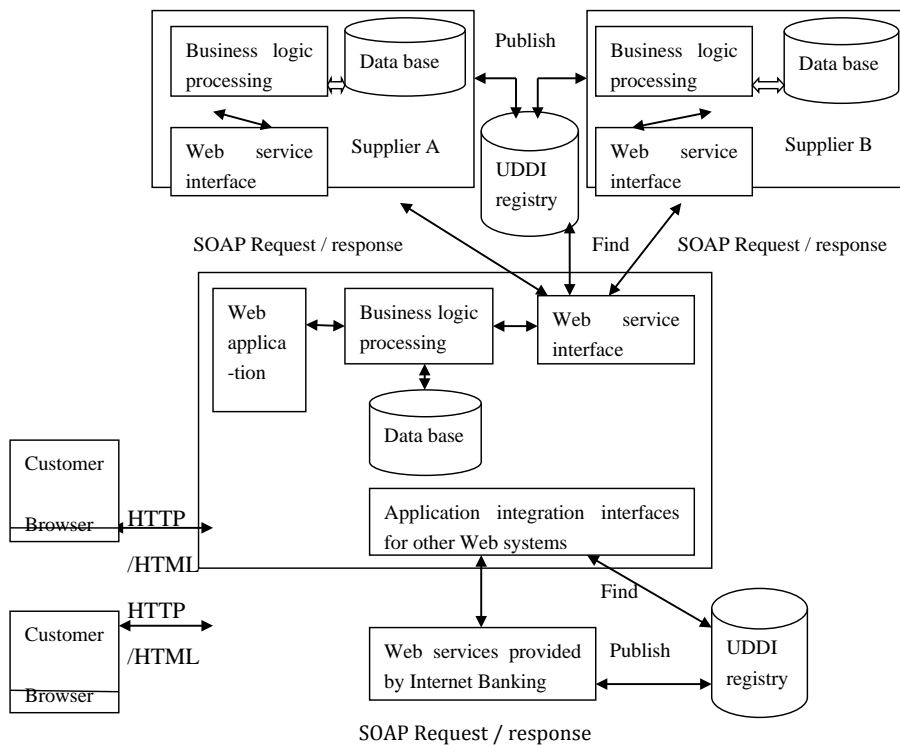


Figure 1: System general structure diagram

4. RESULT ANALYSIS AND DISCUSSION

The design of the online sales system not only can include suppliers, but also take customers and electronic payment partner focused on the system. The system is divided into customer management, commodity

information inquiry, merchandise' catalog management, order management, shopping cart management, online payment system access, customer support services, system settings and management according to the results of the above requirements analysis and then considering the actual situation of the sales company.

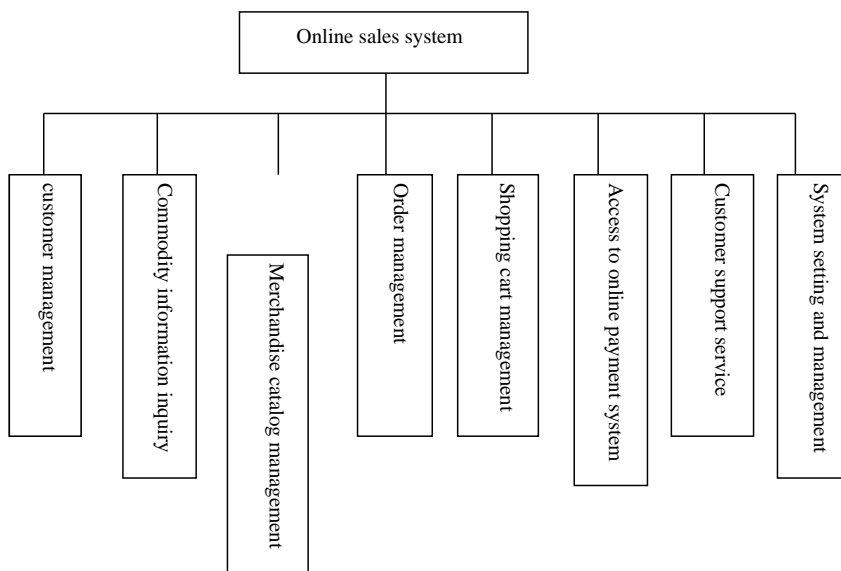


Figure 2: Module analysis

Customer management is one of the most important modules because the customer is god compared to the business. Therefore, the system design is a considerable attention for customer management so that set the user registration, login and information inquiries, and other functions in the following. Users who came to this system firstly can log on the main interface registration related information in order to form their own one

side of the world in the system. User login function is that you can enter the system and operate activities as same as the users who already have an account once to become the registered users of the system through the verification. If the user wants to know the relevant information, you can search relevant information through its own label function of user information query.

Commodity information query module can display the name of the relevant goods and the display is in the form of classification so that it can give customers a clear sense of. A user can access a list of related items by entering the keyword to the search box. All kinds of information for this kind of goods including price and packaging can be browsed by users after clicking on a certain commodity. Therefore, the product information query module is a shopping guide to a certain extent and it can guide customers familiar with the system settings and product type information in a short time as soon as possible (Dong et al., 2010).

The product catalog management module is a module which is used frequently in the process of classifying the goods because businesses need to constantly update the variety of goods including the shelves, shelves of goods. If you want to modify or delete this directory, the function of this module is obviously very useful after a period of time which may not be in line with the actual situation in the market for some directory. Order management is a business to customer orders management. You can assume that the supplier that the enterprise has the function of receiving orders through the network in the system design process in order to reflect the system of seamless docking. The system will send to the supplier after receiving the orders from customers, and the supplier will be able to deal with the order.

Shopping carts increase a function to meet the needs of customers shopping needs and enhance their shopping experience. The shopping cart is set up as a separate module in order to reflect the importance of the system for the customer. Customers will be able to buy the goods and take them into the shopping cart temporarily, and then go to choose and checkout other products until all the end of the selection. It can be said that every order should go through the link of shopping cart. So it is also the most important part of electronic commerce. Customer support services and shopping cart module set a module from the customer's point of view. However, the purity of customer service from customer support services is better, which is different from the shopping cart. The starting point is also very straightforward, which is to let customers have a good experience in the shopping process. The system management modules are responsible for the normal operation of the system and the maintenance of the system mainly.

5. CONCLUSION

Web service technology has become a kind of technical means gradually which plays an important role in many social fields. However, there are many hidden dangers in the security aspect because it is deeply rooted in the network environment. The author put forward a full range of security strategy by studying the relevant literature and field survey. The first is to

protect the information transfer process and information storage. The second is to enhance the system of self-defense capabilities so as to avoid accidental attacks. For this point, on the one hand, we can use the firewall and other isolation measures. On the other hand, enforce the authentication mechanism strictly when the system is registered so as to avoid illegal users to destroy the system.

REFERENCES

- Bi, P., 2015. Research on distributed price monitoring system based on Multi-Agent [J]. Atlantis Press.
- Dai, K., Wang, Y., Zhang, S., 2002. Research on DfX evaluation system for distributed design based on multi-agent [C]. The, International Workshop on Autonomous Decentralized System. IEEE, Pp. 200-204.
- Dong, H., Xu, T., Wu, Q., 2011. Research on adaptive distributed intrusion detection system model based on Multi-Agent. Computer Science and Automation Engineering (CSAE), 2011 IEEE International Conference on. IEEE, Pp. 182-185.
- Dong, Q.W., Ma, W., Li, J.S., 2010. Application Research on Multi-agent Distributed Technology in Instrument Products Collaborative Design System [M]. Proceedings of the 6th CIRP-Sponsored International Conference on Digital Enterprise Technology. Springer Berlin Heidelberg, Pp. 305-313.
- Li, Y., Man, Z., 2010. Research on e-Commerce Platform Based on the Distributed Intelligent Agent [C]. The International Conference on E-Business and E-Government, ICEE 2010, 7-9 May 2010, Guangzhou, China, Proceedings, Pp. 2093 - 2095.
- Wang, F., 2010. Research on multi-agent-based simulation platform for production scheduling [C]. Computer Application and System Modeling (ICCSM), 2010 International Conference on. IEEE, Pp. V2-709 - V2-713.
- Wang, G., Feng, X., Cheng, G., 2007. Research on Intellectualized Fault Diagnosis System Based on Distributed Multi-Agent Technology [C]. International Conference on Electronic Measurement and Instruments, 3, Pp. 405-409.
- Yue, W., 2010. Research on distributed intrusion detection system based on multi-living agent [J]. Science China Information Sciences, 53 (5), Pp. 1067-1077.

