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The Design of Dynamic Coordination Architecture and Supporting Platform for Agile Supply Chain

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Abstract

Agile Supply Chain Dynamic Alliance based on the formation and rapid disintegration of the reconstruction and adjustment. Integrity of the agile supply chain can improve the coordination mechanism between enterprises and the supply-demand relationship, provide direct market information and extensive sales channels and improve overall efficiency of enterprises. Agile Supply Chain Dynamic synergy is an important factor restricting its development, the paper based Web services on the basis of a framework for dynamic collaboration, and used the system to design knowledge service platform in order to better use of knowledge of agile supply chain to win advantage for enterprises.

Keywords: Agile Supply Chain; Web service; SOA; SOAP

1. Introduction

Entering the 21st century, with the economic globalization and information technology rapidly development, competition between enterprises is intensify, regional co-operation and multinational cooperation are increasing and strengthening. The environment puts forward a new challenge to traditional supply chain management under this situation, the traditional supply chain can't adapt to the rapidly change about enterprise internal and external environment and limits the number of cooperative enterprises. Comparing with traditional supple chain, agile supple chain based on service has the

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advantage of architecture, dynamic, agility and better satisfier enterprise development[1]. This paper studies on the dynamic collaboration of the agile supple chain which bases on Web service and designs the service support platform of agile supply chain based on Web service.

This paper defines knowledge service in agile supply chain as: from all kinds of dominant and recessive information resources and the drive of instant knowledge in agile supply chain members, agile supple chain mines and innovates valuable dynamic information resources which shares in the knowledge service platform and provides various intellectual support and intelligence services of high value-added services for members. The aim of this article is to summarize how to improve the problem about dynamic of agile supply chain coordination and design a proper knowledge service platform model for agile supply chain members through third party identity under different environment.

2. Based on the dynamic coordination architecture Web services of agile supply chain

2.1. The service oriented architecture of agile supply chain

This article introduced the service oriented architecture which include Web application layer, service layer, application layer, security layer and management layer]. Based on this frame of reference, figure 1 analyzes agile supply chain system.

The bottom layer is technology platform, including application platform, technology platform, operation system, etc. This layer mainly function is to provide technical support for upper layer.

The second layer is the application layer, including bag packaging application. This layer provides component function calls based on the technology platform layer.

The third layer is service layer, including Web service platform and encapsulation good Web services. This layer is now the center for service Web that services can be released, registration, etc. in this layer.

The fourth floor is service application layer, also can saying is business layer. A single Web services in this layer are grouped into service process, finally realizes the enterprise's actual business operation.

The fifth floor is expresses layer which primarily provides an interface for external access as enterprise portal, such as Windows interface, Web interface. It accepts user interaction by providing user interface.

2.2. Based on the dynamic coordination architecture Web services of agile supply chain

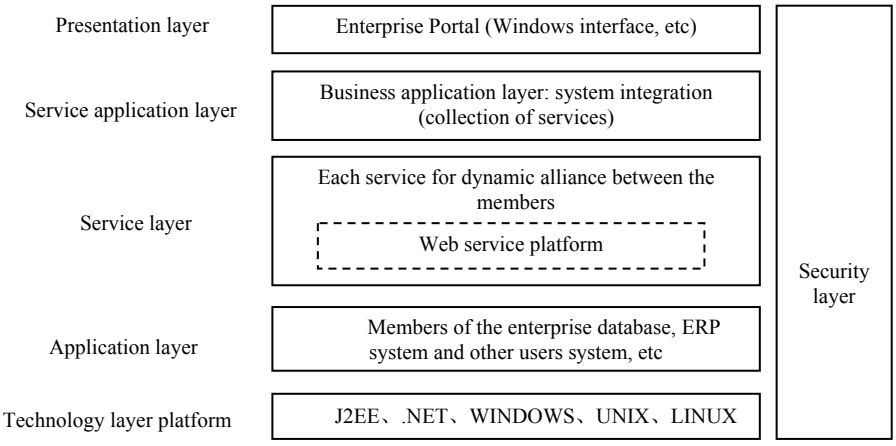

Fig. 1. Agile supply chain system structure

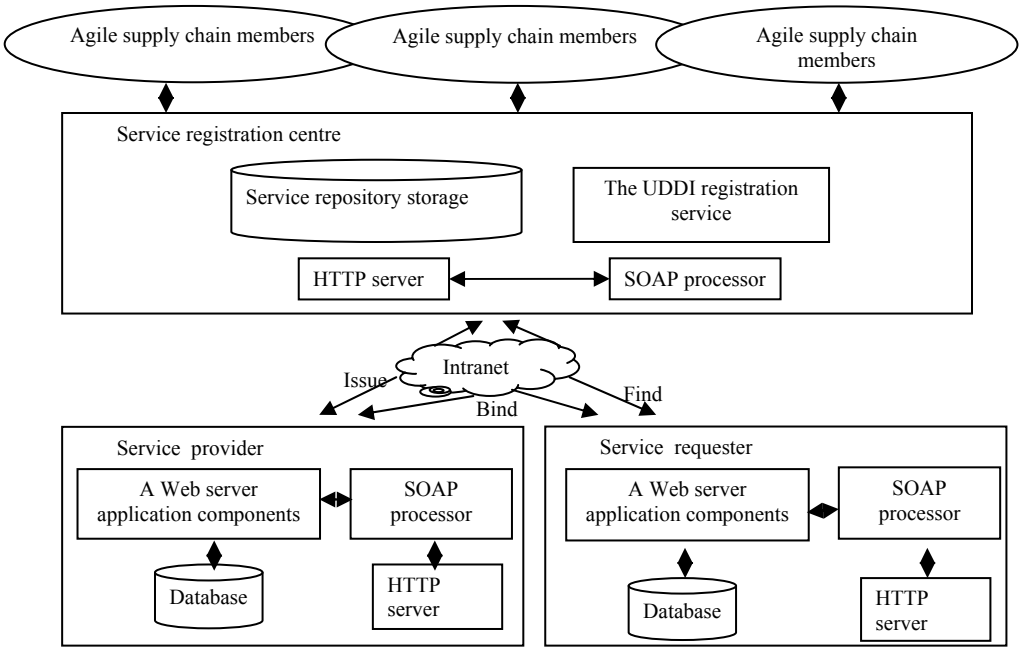

Fig. 2. Cooperative platform based on Web service

The enterprise's existing framework mostly connects with system and the other system through the interface. So it can't satisfy the openness of agile supply chain requirements and its safety is not high. In this paper, we consider service to realize cooperation among member enterprises. As Figure 2 shows, this paper which constructs the platform will firstly divide three roles[4-6].

(1) Service registration centre: it is a supporter of service discovery. It contains usable service repositories and allows interested "service requestor" search "service providers" interface. The UDDI registration service and services date base not only accept SOAP inquires and release request but also sent out the corresponding SOAP response. These are processing by the SOAP processor with HTTP accept and issued.

(2) Service providers: it provides service through WSDL open service interface and queries by regulated UDDI. It will issue its services to the registration center.

(3) Service requesters: it sends out SOAP queries to "service registration centre" in order to inquire the Web service which is needed to invoke.

3. The design based on Web service of knowledge service platform for agile supply chain

3.1. Design objective and thought

One of the most important goals of this article is to design a supporting platform based on Web service of agile supply chain. This platform can realize knowledge sharing in agile supply chain of each enterprise or departments. Then it realizes knowledge service between the dynamic alliance enterprise and customer. Thus it can have an advantage over more rapidly response to market changes in the competition. This platform can connect different dynamic alliance enterprises or departments which are locate in different

places through the Web service. Member enterprises can not only release knowledge on the platform but also access relevant knowledge by Web.

As a concrete realization of SOA, this article firstly designed knowledge sharing platform of double library (knowledge base and database) co-evolution mechanism. Combine knowledge sharing platform with service by using Web services platform irrelevance and in the event that don't affect existing information system of all members. Make every enterprise member easily using system to provide knowledge service to other dynamic collaborative members [7].

3.2. Design for knowledge service platform based on Web service

This paper puts forward the knowledge service platform which is based on the knowledge sharing platform and Web service platform [8], as figure 3 shows.

Data service layer provides data for knowledge service. This design platform choices SQL Server as platform database which is integrated knowledge mentioning here though double library collaborative. We use JDBC technology to connect backstage database because JAVA database connection technology has platform-independent characteristics which conform to the agile supply chain member enterprise original platform of complex and varied characteristics.

Knowledge service logic layer encapsulation is mainly business logic of knowledge service. So, using enterprise Java Beans encapsulate business logic. Under this situation, we can effectively separate logic with underlying hardware.

Service adapter is a key part in design platform. Bottom knowledge service logic need to interact with external users such as data exchange, communication, etc. They mainly realize through this layer of Web service, specific seen above collaborative platform of Web service

Web server mainly realizes the functions from two aspects: on the one hand, it generates and returns Java Service Pages; on the other hand is system's safety. System of client by using browser receives system information or sends information to intermediate layer for processing. Use hyper Text Transfer Protocol agreement, Web server accesses static or dynamic pages which produces by the JSP technology. Users can call business logic layer function or read the backend database data when users through the check of user authentication and authorization mechanism. After the user through authorization, Web

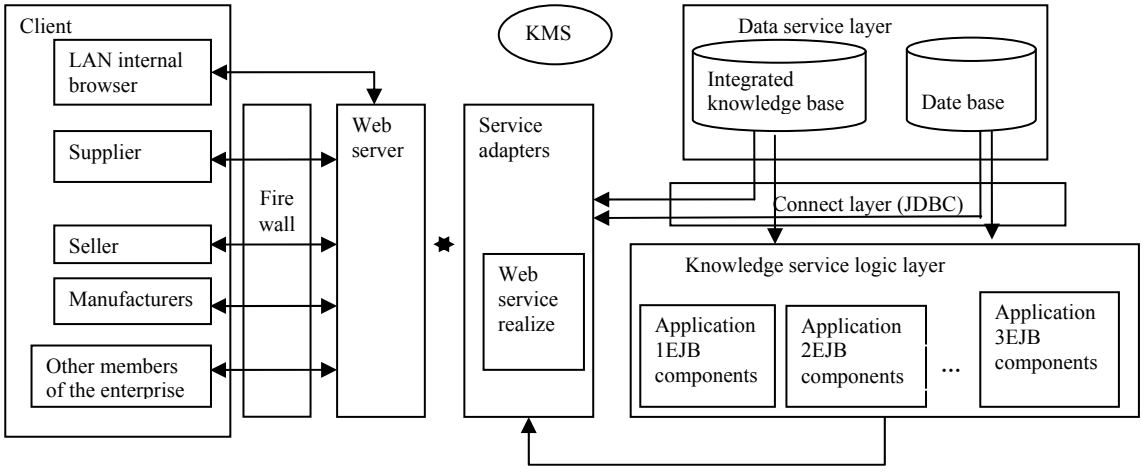

Fig. 3. Knowledge service platform of agile supply chain

layer calls related affairs EJB components for processing, only according to user's request. It produces dynamic or static page in web layer then returns it to the user place.

4. Conclusion

This article is mainly about dynamic coordination of framework and supporting platform design of the agile supply chain. It mainly discusses how to solve dynamic alliance between members of the dynamic collaborative and how to design of agile supply chain knowledge service platform.

(1) This paper divides dynamic union members into three roles--service providers, service requestor and registration center based on the Web services. Define the role as binding, release and found of operation. The dynamic alliance members realize dynamic inter-organizational coordination through releasing services, requesting service.

(2) Comparing the.net with J2EE platform, the paper selects the J2EE platform construction technology. The paper designed knowledge service platform of agile supply chain based on Web service combining with sharing the knowledge platform between enterprises. This support platform can realize to issue enterprise knowledge service, also can make the authenticated member enterprises acquire knowledge. Server layer and firewall Settings protect the security of the system.

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