Initial Analysis on the Development of Cloud Logistics Model in China

Quan YUAN
Bohai University, Jinzhou, Liaoning, China
2047560243@qq.com

Keywords: Cloud Logistic, Big Date, Fourth Party Logistics.

Abstract. Cloud technology is actually a combination of network server virtual technology and network infrastructure. The core value is to provide users with resource sharing services through the one or several data center resources virtualization. The service can get benefit through the lease. Therefore, the cloud logistics is a new logistics concept based on cloud technology. The idea of cloud logistics is to provide the service of socialization, standardization and economy. In China, it based on the concept of big data which is still in its infancy. Thus, the paper will analyze the prospect and feasibility of cloud logistics in the Chinese logistic market.

Introduction

Big data is changing the traditional world, especially in the logistics industry. Big data has completely subverted the traditional mode of foreign trade. Especially in the rapid development era of the Internet logistics, big data is helping cross-border trade to enter a new stage. However, labor costs, land costs and other cost elements cost are still rising in china. It is been witness that he competitive advantage of China's foreign trade in recent years is being weakened. It is obvious that China will experience a long transition period. Specifically, international logistics companies can no longer rely on asymmetric information and opaque information to make a profit. However, the Internet has been changing the status quo of this asymmetry. So is would be a broader prospect to use the Internet thinking for changing the traditional industry pattern. And all this should depend on the rapid development of the fourth party logistics.

Cloud Logistics and Cloud Computing

Concept of Cloud Logistics and Cloud Computing

Cloud logistics is a logistics and transportation system which enables the social resources to be more efficient. It is managed in a direct way which is a kind of terminal to terminal cooperation platform. And we can put each terminal as the core part of the platform. Cloud logistics mode can be operated on the premise that every logistics company has a huge amount of orders. This is related to another concept. That is the cloud computing. The cloud computing is the unified management and scheduling of computing resources with a large number of network connections. They constitute a computing resource pool to service the user. And each user is a server which also named service terminal. The network providing the resource is called "cloud". In the user's view, the "cloud" resources can be infinitely extended and can be obtained at any time. This characteristic is similar to the utilization of hydropower station. In general, cloud computing can be regarded as a business evolution version of grid computing. The information technology is lagging behind, especially for small and medium enterprises. This is due to the lack of funds, enterprise strength and human resources.

The Problem of Traditional Logistics Mode

In China, the Internet and enterprise information technology is still based on internal services. Although they solve the problem of office efficiency, they do not really achieve the effective integration of resources for most businesses. The problems that have plagued many companies are still how to optimize the process and greatly enhance the management capabilities. It is not
cost-effective if every business or organization invests money to purchase the base station or server equipment. The risk to do so is relatively large, and it will be a very efficient and very energy-efficient method if the logistics network operators to provide customers a cloud computing services. The fourth and the fifth party logistics model is also consistent with this concept. It can be used in distributed storage and distributed computing technology to realize the analysis and processing of massive data, in order to meet the requirements of large amount of data and real-time data processing. In addition, through the application of virtualization technology, multiple tenants can be achieved. It allows logistics network industry applications to share storage, computing power and other resources to a number of different tenants. This can improve the utilization of resources and reduce operating costs. Multiple tenants can share resources but also isolate each other at the same time, which ensures the security of the user data. Therefore, the public logistics information platform based on the cloud computing model is a good way to solve the problem to traditional logistics industry. From the standpoint of infrastructure, cloud computing can realize the server virtualization and data center. The enterprise does not need to give each person or department to configure the computer, but may share the computer resources. Infrastructure, software, and even the platform in the enterprise information technology can be supplied through the network.

In addition, for the logistics enterprises, they generally have some problems regarding unpredictable cost, low standards service level or difficult staff assessment.

The Comparison between Cloud Logistics and Traditional Logistics

Compared with the traditional logistics model, cloud logistics is more social, economical, efficient and standardized. First of all, the socialization refers to the better use of resources in society. These resources include thousands of logistics enterprises and distribution centers. These connect resources can be used as a variety of terminals online, so as to fully serve the community. Secondly, the characteristics of the saving dependent on the application of big data. Build a small cloud computing platform is very wasteful for each enterprise. But the centralized construction of enterprise resources can enjoy the scale effect. Then, the standardization is the biggest problem in the logistics industry. This is because of the confusion in the logistics industry standard setting in China. Through a unified platform, the AWB inquiry process, service product, price, service and customer service insurance can be standard and transparent. And the establishment of the unified platform also provides the sharing of efficiency and security for the terminal information.

Value of Cloud Logistics

Cloud logistics value is that it can provide value-added services and improve customer satisfaction. This is because the cloud logistics is more to provide services by the fourth party logistics. The core of the fourth party logistics lies in the value added service. The rise of cloud logistics provides a good potential for the fourth party logistics. By providing advanced information technology, the fourth party logistics can get great profits Cloud logistics system can be better for the fourth party logistics to establish a complete advanced ecological system to provide logistics park planning, information planning and supply chain optimization. Cloud logistics value is also reflected in it can optimize the logistics link and improve the overall efficiency of the operation. The fourth party logistics provides the overall optimization. This overcomes the weak continuity and poor channel of third party logistics. The fourth party logistics can reduce the unnecessary waste through the integration of the supply chain. The overall scheme design will bring a great improvement in the efficiency of logistics, both in terms of transport speed and resource utilization. In addition, the value of cloud logistics is also reflected in the cost of logistics. It achieves efficiency and effectiveness. This is because the third party logistics can only participate in a part of the supply chain. However, the fourth party logistics will be a combination of every link in the process of logistics. It can handle the optimization without limitation. It achieves the highest efficiency at the lowest cost by integrating the resources and providing the information.
Cloud Logistic and Big Data

Concept of Big Data

Big data is a huge amount of data sets with huge data categories. And such data sets can not use the traditional database tools to capture, manage and deal with the contents. It can real-time capturing, managing, processing and sorting out the data to generate the required data of enterprises. Big data design involves a wide range of data, including video, pictures, text information, web logs, geographic location information. The aggregation of data knowledge can produce a lot of value. Although the value density is relatively low, but the commercial value is very high. If the data processing speed is fast enough, the enterprise can quickly get high value information from various types of data in real time. This is essentially different from the traditional data mining technology.

The Combination of Big Data and Cloud Logistics

Big data technology can collect and process customer orders and can grab and analyze customer demand information in the logistics public information platform. This is one of the main performance of cloud logistics and big data to improve the efficiency of logistics. In addition, the big data can also help users to submit logistics management platform to schedule and integrate all kinds of logistics resources, in order to deliver the goods at the fastest speed. The joint application of cloud logistics and big data fully reflects the innovative advantages of efficient collaborative logistics. This involves the reduction of resources and logistics costs, but also related to the green environmental protection, energy saving, information security and upgrade competitiveness promotion. Big data can gather a huge amount of information flow for the cloud logistics. This includes a complete range of orders, visualization of the life cycle, close convergence and traceability of the business. In addition, business activities can be adjusted in real time in order to facilitate multiparty transactions. It can be intelligent analysis of enterprise logistics costs and estimates of order revenue, so as to achieve the enterprise fine management and to provide customers with personalized and integrated logistics solutions.

The Specific Steps of Big Data and Cloud of Logistics

First of all is to establish a big data system, which is the contact and communication with the customer on the terminal. It detects customers, collects and extracts data through electronic commerce, calling centers, social networks and sensors. After that, the system will analyze the data and obtain the real-time insight. Then the system will further establish a big data warehouse, to carry out advanced analysis and customized analysis in order to provide in-depth insight for enterprises. At this point, the big data system can integrate and manage the data information and provide complete data life cycle management and control. This is the first step in how to build a smart, efficient and ecological logistics system.

The second step is to operate the public logistics information platform. On the one hand, the platform can open to the customer market through the data interface. On the other hand, it can receive large data information through the data interface. Big data provides massive information logistics services for customers, including all kinds of logistics information related to human resources, equipment resources, logistics design capabilities, public services and policy resources, logistics insurance and logistics finance. The information gathered into the virtual logistics resources and capabilities. It can form a virtual resource base on the public cloud logistics information platform for searching and querying for customers.

The third step is to operate the logistics management platform to conduct feedback and process improvement. It is an integrated logistics service platform, which involves information sharing, collaborative work, resource integration, business process re-engineering, business intelligence and decision analysis. The main task is to accurately and quickly handle customer orders involving RFID and GPS. Platform can be used to dispatch and command of all kinds of logistics resources. It can also plan the way of logistics and logistics. It provides integrated logistics solutions. Such a solution can shorten the logistics process and deliver the goods at the most efficient speed according to the customer's requirements. This will be able to achieve cloud logistics platform for intelligent
identification and control of resources. In addition, all logistics providers can be gathered in this platform, which will involve warehousing companies, transportation companies, third party logistics, fourth party logistics companies, freight forwarding companies, logistics solutions consulting business, banks and insurance companies. It can provide customers with a full range of logistics services, involving order services, transportation services, warehousing services, information services, financial services, consulting services, agents and insurance services. And there will be a similar aid to the society which are inadequate use of resources and uniform standards.

Innovative Logistics Model under the Concept of Cloud Logistics

Supply Chain Integration and Information Technology

Supply chain logistics integration refers to the integration of cloud manufacturing, cloud sales and cloud logistics. Cloud manufacturing is the integration and sharing of manufacturing resources and manufacturing capabilities with cloud logistics as a platform. It is supporting the manufacturing industry in a wide range of network resources, and to provide products with high added value, low cost and global manufacturing services. Here will be related to the concept of cloud manufacturing and cloud logistics integration. There are two modes which are the most typical about cloud logistics and crowd-sourcing to leading enterprises as the main chain. This article relates to the Crowd sourcing mode is mainly in the service of large logistics enterprises. It can be locked a giant enterprises in industry chain and extend the service up or down along the supply chain. So the model can provide the multi-dimension and integrated services for the supply chain. Its service category is mainly related to logistics, customs declaration, bonded, supply chain finance, circulation processing, and other value-added services.

Virtual Port Mode

Virtual port is to be integrated into the electronic platform based on the virtual reality of the port facilities, functions and services, as well as the port series of ancillary services. The virtual port has no real port, ship, dock, warehouse, yard, but other ports functions are available. It extends to the transportation hub of the city's hinterland, which is the virtual port. Electronic platform can be seamlessly with the virtual port services. It can finish the goods export operation in advance and cooperate with the customs, commodity inspection, bank, insurance and other departments to complete the business. In addition, it is also a modern integrated logistics information platform system to ensure the safety of export cargo shipment through scientific and technological methods. Virtual port has four main features: collaborative resources, reduce costs, improve efficiency and ensure safety.

The Limiting Factors of Cloud Logistics Development

Although there are many advantages of cloud logistics development, but it still develops slowly in China. The reason has many aspects. First of all, there are still some contradictions between the logistics enterprises. There is unfair competition between Chinese logistics enterprises nowadays. These unfair competitions have harmed the interests of consumers. However, after the implementation of the cloud logistics, all logistics enterprises will be integrated into the same platform. As a result, enterprises have to face new competition and cooperation relationship. However, there is a certain risk for logistics enterprises. Many logistics companies are not ready to develop the cloud logistics model in order to avoid such risks. Moreover, the profit model of cloud logistics is mainly obtained through the commission. It is worthy to study whether the Commission will significantly squeeze out the logistics enterprise's profit. In addition, who will bear the issue of cloud logistics platform transaction is also the issue that we had to answer. Finally, China's logistics network is still not perfect. The proportion of the third party and the fourth party logistics is still lower. These are also the reasons for the development of cloud logistics difficulties.
Conclusion

Although the development model of cloud logistics is still in the initial stage. And many theories are still not perfect enough. Some large logistics companies have begun to try to apply this innovative model. This also involves the government's encouragement and support. However, they still need to face the failure of the initial stage. But the article believes that the combination of big data cloud logistics model is still the future direction of innovation and development of China's logistics industry. It will bring great changes to the logistics industry in China.

References