

# Efficient Secure Distributor Decision making B2B Model in Cloud Computing

C. Phani Ramesh, Prof. M. Padmavathamma

**Abstract** - Cloud computing is a new concept and it is applied to many industries at present. For instance, there has been a new trend for e-commerce companies to adopt Cloud Computing. Many organizations are attracted by Cloud computing because Cloud can save money and time in IT infrastructure. There is no doubt that this may be the biggest benefit brought by Cloud computing, but Cloud computing also brings many benefits. In this paper, we clearly focus on Business to Business framework for selecting the best Distributor in a secure manner among the available Distributors in B2B Scenario and doing transactions in a secure manner using cloud technology.

**Index Terms** - Cloud computing, B2B, E-Commerce, Development Framework, Decision making, Security.

## 1. INTRODUCTION

In the emerging Global Economy, E-commerce and E-business have increasingly become a necessary component of business strategy and a strong catalyst for economic development. The security of Internet electronic transactions is one of the key factors needed for further E-business development. Online Commerce processes demonstrate particularly to security problems.

For e-business, Cloud Computing provides specific benefits. For example, it is quite important for e-commerce companies to keep their distributors and manufacturer information secure. Cloud Computing helps to improve the security performance in e-commerce by providing a safer way to store the information [1].

Cloud computing should be considered another internet based option to provide software, web hosting and hardware services solutions for an e-commerce business. A cloud computing system relies on shared resources and broadband networking connectivity for access to its main servers. Information, databases, product catalogs,

software packages and other content is stored on the cloud computing service providers server and accessed directly through the internet. While providing advantages in containing costs, in outsourcing IT maintenance staff and related costs and in having just enough storage capacity without paying for excess, cloud computing raises security and performance issues. The major vulnerability of cloud computing is the concern over the security of proprietary data and software stored in the cloud. The issue of importance for e-commerce businesses would be performance drop-off or loss of connection. Slow page loading or a dropped connection would frustrate a customer trying to do business and raise concerns over the reliability and security of that business transaction.

Cloud Computing gets more and more popular as it can be applied nearly everywhere: the libraries; the fire services; the small retailers which need secure e-commerce websites. When talking about beneficiaries of Cloud Computing, people always think of Cloud consumers. Actually, not only Cloud consumers including the organizations and end-users, but also Cloud providers can benefit from it [2].

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## 2. RELATED WORK

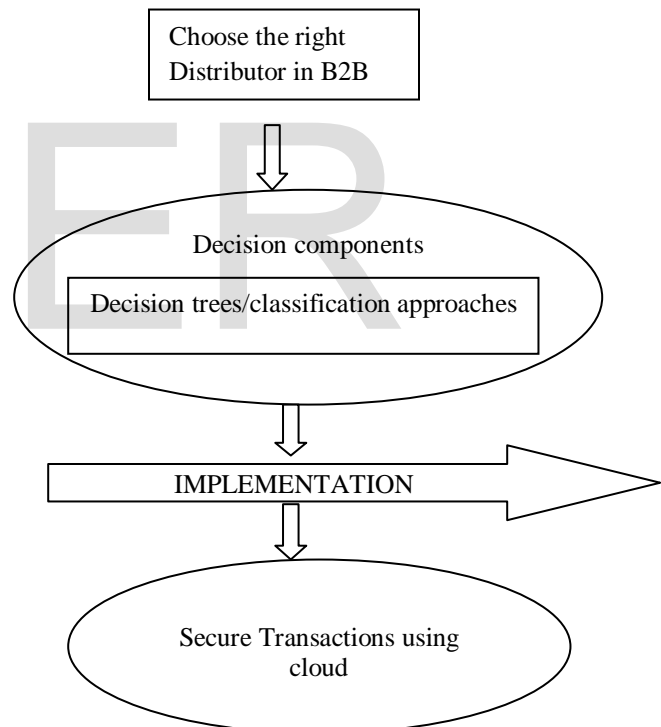
With the fast development of Internet and its data scale, B2B (Business to Business), whose speed and high availability advantage is based on Internet, is eroding more and more market share of traditional business. In recent years, the new data processing technologies, such as cloud computing, assure the enhancement of computer's computing capacity; it has become possible for researchers to process and analyze the massive business data, including large scale customer data, and large scale commodity information. With the advance of Internet technology, e-businesses are striving to reach an unprecedented large population and start to take on new forms. An e-business can be built on top of a wide range of e-business models.

E-commerce (Electronic Commerce) can be defined as the summation of all commercial activities being performed in, via or by facilitation of virtual space, i.e. Internet or the World Wide Web. All commercial activities running inside the electronic-business sphere can be regarded as E-commerce. E-Business commonly represents all types of commercial activities which are based on the Internet such as retail shopping centers, banking, stocks and bonds trading, auctions, real estate transactions, plane ticket booking, movie rentals and anything that could be operated in real world. Not only are some commercial transactions done directly in the electronic sphere, but personal services or other real world business are also represented online on the Internet. This way, the E-Business is growing as an independent, sophisticated and enormous operational section of the world economy [3].

As online E-commerce continues to grow in all areas, customer expectations particularly in B2B e-commerce are changing rapidly.

### 2.1. BUSINESS-TO-BUSINESS (B2B):

It describes commerce transactions between businesses, such as between a manufacturer and Distributor or between a wholesaler and a Distributor. B2B transactions primarily target companies and other wholesale distributors. A business-to-business (B2B) wholesale distributor refers to a business that moves products through the supply chain by purchasing from manufacturers and selling to retailers. The B2B e-Marketplace can significantly improve the way companies deal with their customers and distributors.[4]



### 2.2 DECISION SYSTEM:

We select classification approaches based on their knowledge discovery capability in general and knowledge interpretability in particular. Rules usually consist of several *if* patterns and one or more *then* patterns. They are known as straightforward and easy to understand and verify, and thereby can be easily applied by

Manufacturers. They can represent associations and causal-effect relationships between different variables or factors [5]. Knowledge in form of **decision tree** can reveal patterns in distributors' perception of Internet retailing services. Therefore, we target at decision tree in this study.

This paper takes a step toward discovering knowledge for predicting distributors in b2bby using classification approaches. We select classification approaches based on their knowledge discovery capability in general and knowledge interpretability in particular.

### 3. DECISION TREES

Decision trees [6] classify instances by sorting them down the tree from the root to some leaf node, which provides the classification of the instance. Each node in the tree specifies a test of some attribute of the instance and each branch descending from that node corresponds to one of the possible values for this attribute.

The reasons for decision learning tree algorithms to be attractive are: -

1. They generalize in a better way for unobserved instances, once examined the Attribute value pair in the training data.
2. They are efficient in computation as it is proportional to the number of training Instances observed.
3. The tree interpretation gives a good understanding of how to classify instances based on attributes arranged on the basis of information they provide and makes the classification process self-evident.

**ID3** is a decision tree algorithm which constructs decision tree by employing a top-down, greedy search through the given sets of training data to test

each attribute at every node [6]. It uses statistical property call information gain to select which attribute to test at each node in the tree. Information gain measures how well a given attribute separates the training examples according to their target classification.

### ENTROPY

It is a measure in the information theory, which characterizes the impurity of an arbitrary collection of examples. If the target attribute takes on  $c$  different values, then the entropy  $S$  relative to this  $c$ -wise classification is defined as

$$\text{Entropy}(S) = \sum_{i=1}^c -p_i \log_2 p_i$$

where  $p_i$  is the proportion/probability of  $S$  belonging to class  $i$ . Logarithm is base 2 because entropy is a measure of the expected encoding length measured in bits.

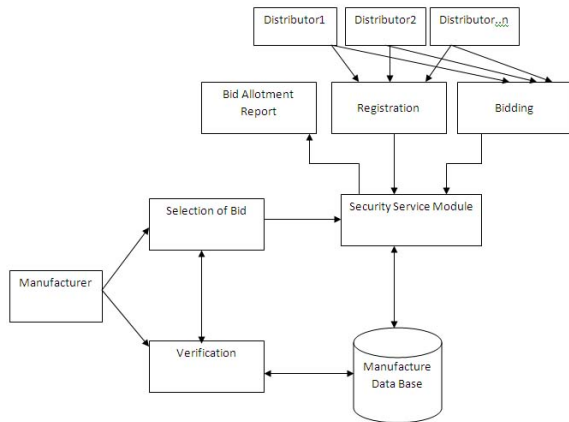
### INFORMATION GAIN

It measures the expected reduction in entropy by partitioning the examples according to this attribute. The information gain,  $\text{Gain}(S, A)$  of an attribute  $A$ , relative to the collection of examples  $S$ , is defined as

$$\text{Gain}(S, A) = \text{Entropy}(S) - \sum_{v \in \text{values}(A)} \frac{|S_v|}{|S|} \text{Entropy}(S_v)$$

where  $\text{Values}(A)$  is the set of all possible values for attribute  $A$ , and  $S_v$  is the subset of  $S$  for which the attribute  $A$  has value  $v$ . We can use this measure to rank attributes and build the decision tree where at each node is located the attribute with the highest information gain among the attributes not yet considered in the path from the root.

#### 4. PROPOSED SECURE B2B MODEL IN CLOUD COMPUTING ENVIRONMENT



#### 4.1 ADOPTING CLOUD IN E-COMMERCE COMPANIES

The problems e-commerce companies are facing

##### 4.1.1 SECURITY

Security is one of the most significant barriers for the development of e-commerce. In recent years, there are numerous reports about websites and databases being hacked into, and security holes in software.

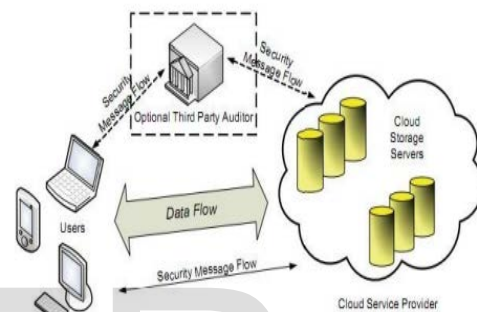
##### 4.1.2 THE SOLUTIONS BROUGHT BY CLOUD

Cloud offers new delivery models and deployment models for IT resources. Cloud-e-commerce includes information technology, marketing, management and other issues. It offers a synthetic platform for e-commerce transactions and e-commerce services. The enterprises do not need to worry about setting up the software and hardware environment any more with the IaaS or SaaS model of Cloud. And, they do not need to invest labour and capital to construct the system. All of the work can be passed to Cloud provider. Thus, enterprises can focus on their core business.

##### ☐ A SAFER WAY FOR DATA STORAGE

Although Cloud Computing has security problems itself, it still brings opportunities to information security. Data is stored concentrated in the Cloud. This method of data storage brings at least two benefits to data security. First, it reduces the possibility of data theft, leakage and damage.

Before the emergence of Cloud, data can be leaked easily, such as laptop theft. With Cloud Computing, users can store their data on Clouds. In this way, even the user's computer is lost or damaged, the data still can be found on Clouds. Secondly, data safety monitoring will be more easily. Since data is stored in data centres, managers of the data centres can implement the centralized management such as security control, software deployment and resource allocation. Hence, enterprises do not need to worry about data security too much [9].



Cloud Data Storage Architecture

##### ☐ PROVIDE DECISION-MAKING MODEL ON BUSINESS INTELLIGENCE LEVEL

Business Intelligence (BI)[10] provides valuable knowledge and information for decision makers by leveraging a variety source of data as well as structured and unstructured information. Nowadays, the main difficulties in BI that most e-business companies are facing are as follow. First, with the continuous growing number of users, the volume of data is becoming larger and larger. Thus, higher capabilities in data storage, mining and management are required. Second, the constant change of demand requires high real time property of BI. This asks for faster and more efficient running performance of e-commerce companies. Meanwhile, good extensibility is also needed. Third, high cost is a main factor that hinders the development of BI in e-business companies, especially middle-sized and small-sized ones. The data centre provided by Cloud Computing offers good basis and conditions for e-business companies to develop BI.

## 5. CONCLUSION

Classification techniques have been widely applied to facilitating decision making in an e-business environment. In this paper, we select the classification approach decision tree for making good decision for selecting the best distributor among the available distributors in a secure manner in B2B Scenario basing on cloud computing environment.

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