A Conceptual Model for E-Commerce Applications based a Cloud Computing

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ABSTRACT

Cloud computing is a modern technological business model that helps companies in many industries, especially about e-commerce where digital computing offers new opportunities. Therefore, this paper introduces the concepts of e-commerce application framework based on cloud computing, the development trend of cloud computing that adapts to the problem of e-commerce and the storage and distribution of resources. A proposed structure allows organizations to reduce costs through the effective implementation of e-commerce activities and solve the problem of large companies to improve e-commerce applications through cloud computing.

Keywords
Cloud Computing, E-Commerce, Application model, Cloud Computing of E-commerce.

1. INTRODUCTION
Cloud computing is the next-generation computing technology, allowing users to use additional resources that are not available to them and work on high-end computing infrastructure from the low-cost cloud provider Service Cloud. Organizations tend to equip their information systems to deliver the best performance to their users [1]. However, the high cost of high-performance information systems and the difficulty in allowing them to develop and expand these operations over time have made cloud computing ideal for scalability, scalability, and availability [2].

The concept of cloud computing: is a technology depends on the transfer of processing and storage space and computer-related data to the so-called cloud. A server has accessed through the Internet, that is, converted IT programs from products to services and it is characterized by solving problems maintenance and development of applications and therefore concentrated effort User or Beneficiary to use these services only [3].

E-commerce is one of the topics of the digital economy, where the digital economy based on two facts: Information Technology (IT) or the information industry in the era of computing. The communication is what created the real and real existence of e-commerce as Depends on computing, communication and various technical means of implementation and business management [4].

E-commerce is the implementation and management of business activities related to goods and services through the transfer of data over the Internet or similar technical systems. The concept of e-commerce in general to three types of events: First, the functions of linking or entering the Internet and the included connectivity services Of services with technical content and a clear example of services provided by

ISPs - Internet Services Providers and the second, delivery or technical provision of services. Thirdly, the use of the Internet as a means or means of distribution of services and distribution of goods and services delivered in a non-technical manner (physical delivery). Within this concept, there is confusion between e-business, e-commerce and the exploitation of technology in traditional trade activities [5].

The paper discusses first part the context of Model of cloud computing application, definition, cloud computing Service Layer, advantages and disadvantages of cloud computing, In the second part of this paper looks at a model of an E-commerce application, definition, types of e-commerce, Characteristics of e-commerce. Finally, the section discusses the Conceptual model for E-Commerce Applications Based a cloud computing and integration cloud computing with e-commerce.

2. MODEL OF CLOUD COMPUTING APPLICATION
2.1 Cloud Computing
Cloud computing Is a word that refers to the on-demand computer resources and systems available on the network that can implement some integrated computer services without local resources to facilitate user access. These resources include data storage, backup, and self-synchronization, including software processing capabilities, scheduling of tasks and payment of e-mail and remote printing. When connected, the user can control these resources through a simple software interface that simplifies and ignores many internal details and processes [14].

According to the layers of service, the application mode of cloud service can divide into Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) [6], as illustrated in Figure. 1.

Software as a service (SaaS): It is to use a specific application stored in the cloud. For example, Word program exists in the data center and connect to the Internet and write it and modify and add data and then get the output from it, and all that you are on the cloud and your device is just a communication tool. The user cannot control the operating system in the cloud and does not control hardware or network connectivity. YouTube can be considered in this category, as the on-site video browser is the application loaded on the cloud and through which you can access the existing videos, but you can not change anything on the site.
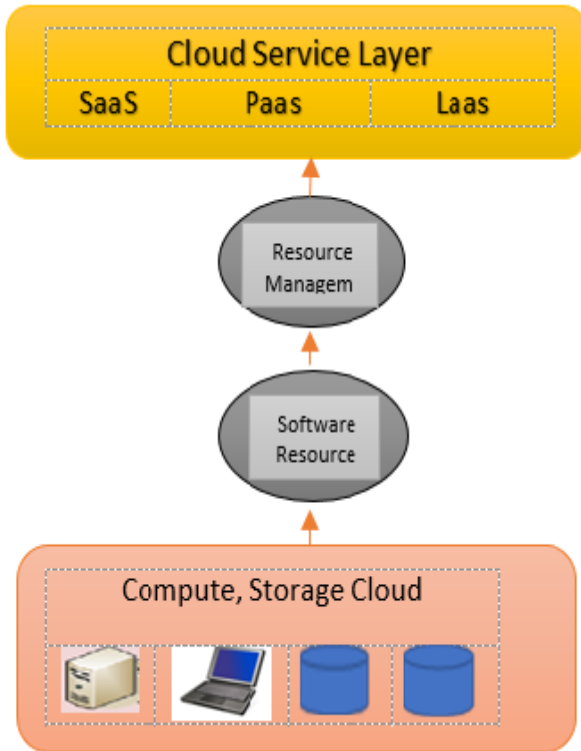
Fig 1: Cloud Computing Service Layer

1) Platform as a service (PaaS): Use the cloud as a platform to put several applications on them, and you can work on them all You can also set the operating system is too full, and there is an integration between applications. For example, designed something Photoshop and then introduced to another form is moving and add effects. We get a video With a voice. Such as Google apps, a platform that lets you add apps as you like.

2) Use the cloud as a platform to put several applications on them and you can work on them all You can also put the operating system is also full and there is an integration between applications, for example, designed something Photoshop and then is introduced to another application is moving and add effects We get a video With a voice. Such as Google apps, a platform that lets you add apps as you like.

3) Infrastructure as a service (IaaS): Here we deal with the cloud as a limited infrastructure with specific processing capacity, size of memory, storage space and a certain number of users, and you are free to use it in the way that suits you. For example, you can install several operating systems, install several applications system, and allow a certain number of users to access each operating system to use its applications without letting them be confused.

2.2 Advantages and disadvantages of cloud computing

The advantages of cloud computing are summarized as follows [12] [13]:

1) Share resources provide greater ease and flexibility when performing tasks.

2) Much lower material cost than standard processing

and storage tools and software.

3) Speed in joining with modern techniques online.

4) The possibility of linking several sites such as social networks.

5) Facilitates of cooperative groups.

The disadvantages of cloud computing have summarized as follows:

1) Difficulties of electronic clouds.

2) The possibility of reducing the storage capacity at the request of the website.

3) You cannot access your information when a site is malfunctioning.

4) Intellectual property rights problems online.

5) The provision agreement between the site and the user regarding the protection of rights.

6) Not all applications work in the cloud and do not work well with low-speed connections.

7) Lost and lost data stored.

3. MODEL OF E-COMMERCE APPLICATION

3.1 E-commerce

E-commerce is a system that allows the online business of goods, services, and information, and provides automatic actions that support the generation of returns such as the promotion of demand for those products, services, and information, as e-commerce offers online sales and customer support operations. E-commerce can liken to an electronic marketplace where sellers (suppliers, companies, shops), brokers and buyers, where products and services have offered in virtual or digital format, are paid for by e-money [7].

E-commerce has based on a relationship between two parties. Each relationship between the two sides expresses a different type of trade; Figure 2 shows the types of e-commerce [8]:

1) Business-to-Consumer (B2C): Refers to the sale and purchase of companies, whether they are business partners, partners, or any form of electronic data exchange. Examples of such information include the submission of purchase orders to suppliers, receipt of invoices, electronic payment, and transfer of information between companies.
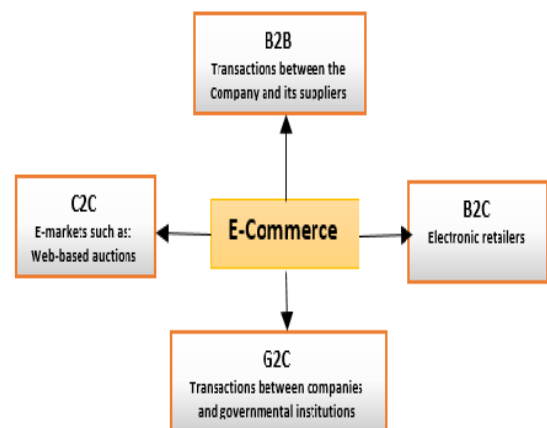

Fig 2: Model of E-Commerce Application

2) Business-to-Consumer (B2C): Most of the locations that can enter are directed to the opposite of shopping malls, to enter into a supermarket or a merchants' center of products provided by the site, Issuance of orders for goods or services required. The transaction is carried out on a credit, bank, or credit basis using credit cards, plastic money or electronic checks.

3) Customer- to- Customer (C2C): In this case, consumers are sold directly to consumers. For example, a consumer does not put a subsidy on his or her website to sell personal items or news in a field.

4) Customer-to-Business (C2B): It includes retail outlets selling corporate products or services, and this is the opposite of B2B business between B2C and corporate customers. Some banks now require customers to provide services to them.

5) Government -to-Customer (G2C): This type of trade between the consumer and local revenues, such as the consumer to pay the dues of the electronic and without the need to review the government departments.

3.2 Characteristics of e-commerce

E-commerce and applied online have characterized by several qualities, the most important of which are [9]:

1) There is no use of paper documents exchanged and used in the conduct and implementation of commercial transactions, and the processes of interaction and exchange between dealers are carried out electronically and does not use any paper. Therefore, the electronic message has adopted as a legal guarantee recognized by the parties in the event of any dispute between the dealers.

2) The e-commerce application can handle with more than one side at the same time so that each party can send e-mails to a considerable number of receivers at the same time, and no need to carry them again.

3) The interaction between the two parties dealing with electronic commerce through the communications network, and what distinguishes this method is the existence of a high degree of interactivity without the sides being simultaneously on the web.

4) The lack of coordination among all countries to coordinate and pass a special law within the laws of each state, which hinders the overall application of e-commerce.

5) The sale and purchase of non-physical goods can be done directly and through the telecommunications network. Thus, e-commerce is unique to traditional means used in the buying and selling process, such as reports, research, studies, photographs and the like.

6) The use of computer systems available in business for the flow of data and information between the two parties without any direct intervention of workforce helps to complete the business process with the lowest costs and high efficiency.

4. CONCEPTUAL MODEL FOR E-COMMERCE APPLICATIONS BASED A CLOUD COMPUTING

4.1 E-Commerce Based a Cloud Computing

According to the type of service, the application mode of cloud service can divide into Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS)[8], as illustrated in Figure. 3.

Infrastructure as a Service: (Iaas) of e-commerce cloud: Infrastructure providers manage a wide range of computing resources, such as inventory processing and storage capacity. By relying on virtualization, they can partition, further dynamically assign and resize these resources to build customized systems as required by Customer, Service Providers. They deploy software stacks that manage their services.

Platform as a Service layer (PAAS) of e-commerce cloud: Cloud systems can offer an additional abstraction level: instead of supplying a virtualized infrastructure, they can provide the software platform where systems run on. The sizing of the hardware resources demanded by the execution of the services has made transparently.

Software as a Service (SAAS) of e-commerce cloud: At this stage, a range of services is of high importance to a wide range of users in the computerized cloud. Examples include electronic options for typical desktop applications such as retrieval and text processors.

 E-commerce cloud environment provides user-oriented ubiquitous adaptive hardware resources, computing environment, and software services. In e-commerce cloud space, users can access digital services transparently at any time in anywhere. The users can obtain the necessary network and computing services very naturally at any position. The information space and physical space will integrate because of ubiquitous computing capability. In addition, the universal information terminals together with the embedded system equipment will be the vehicles of e-commerce in the future.
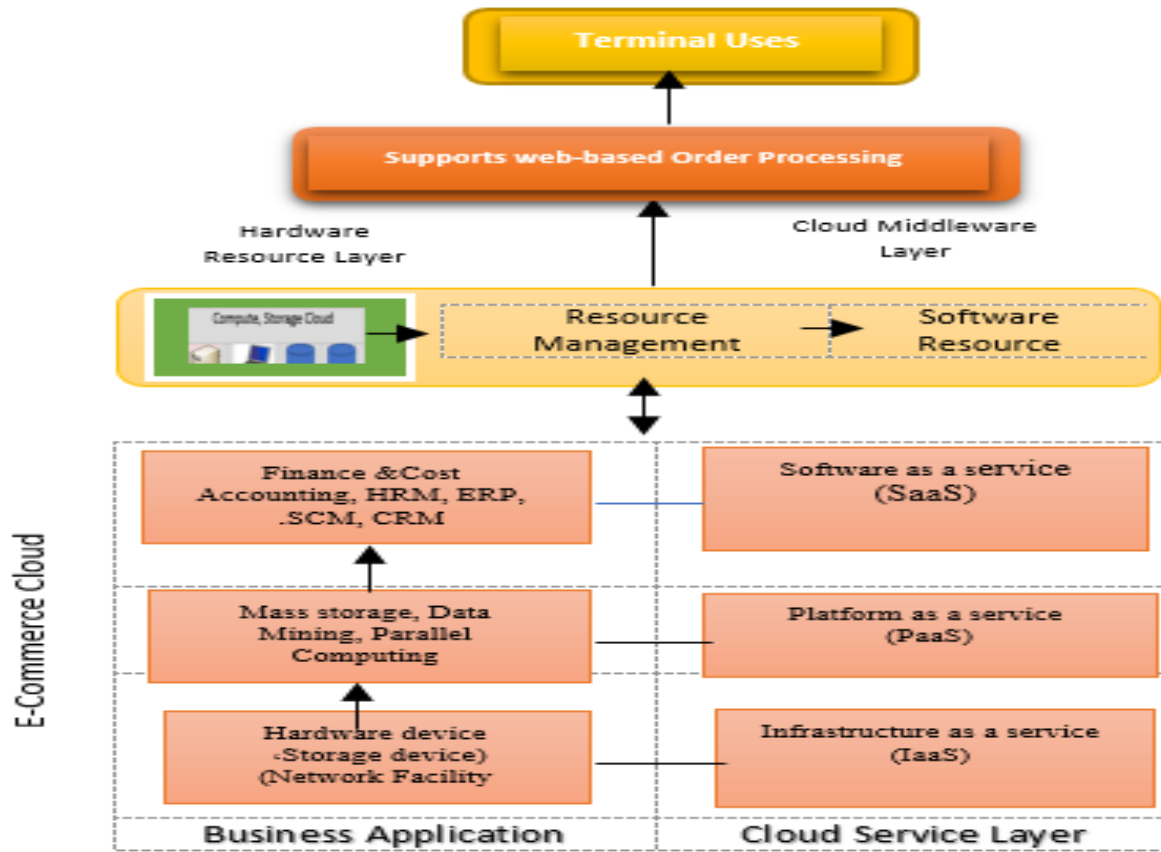
Fig 3: Model for E-Commerce Applications Based a Cloud Computing.

4.2 Integration Cloud Computing with E-Commerce

Business application layer differs from all other segments in cloud-based e-commerce architecture, because this layer acts as an essential business logic of e-commerce, and frames the expansion of a group of components for e-commerce. The growing number of SAAS services provide different aspects of capability enabling business. They are leverage cloud platform such as sales tracking management, goods creation, and evaluation, customer relationship management (CRM), Self Serves Customer Portal, Supply chain management (SCM), Finance and Cost accounting, Enterprise resource management (ERP), Human resource management (HRM) [11].

There is a set of a factor, which related with the progress of EC development; it needs are changing into its constraints because of the limitation of enterprise size, economic strength, and technical force, which is mainly shown in following aspects [10] [8]:

1) Technical problems such as mass data storage, data mining, Information security .. etc., become a tight set, especially for small and medium-sized e-commercial businesses.

2) Growing equipment &operation cost are bound to make troubles in the development of e-commerce system.

3) Limitation of information processing capacity and safety performance is imperfect, all of which impede the growth of e-commerce.

4) Nevertheless, with the emergence of cloud computing and the progress of technology, it provides for e-commerce excellent opportunity to develop.

5) E-Commerce based on cloud computing (e-commerce cloud) environment offers a massive scale of the data center in which mass data storage, high-speed computation, and data mining capacity and significant cost advantage to develop e-commerce business.

6) In e-commerce cloud model, data storage has highly distributed, data management is highly centralized, and data service is highly virtualization, all of which offer a much secure data service.

7) Because the e-commerce cloud environment reduces the demand for access to the terminal, the problems of information processing, transmitting and security can be solved neatly.

8) Operation and management based on cloud computing. An e-commerce business can process data flexibility, minimize the operation cost, and realize the automation of solutions in the application without considering the position of equipment resources.

9) Supply Chain Management (SCM) based on the cloud computing. Cloud computing offers secure and reliable, service of data storage and calculation in time whenever clients need.

5. CONCLUSIONS

The research on the creation of e-commerce application model based on cloud computing by cloud data storage and cloud computing, high-speed computing capabilities, as well as the ideal allocation and sharing resource mode to succeed. The requires empowering its employees, business partners and users to use platforms and collaboration tools that promote innovation. Cloud computing infrastructure is next-generation platforms that can provide tremendous value to companies of any size. They can help companies achieve higher efficiency in the use of IT equipment and software investments, and provide a means to accelerate adoption of innovations. Cloud computing increases profitability through improved resource utilization. Costs are reduced by providing appropriate resources only when resources are needed. Cloud computing has enabled teams and organizations to streamline long-term purchases. Cloud computing is still very young technology, and we still have more room for improvement. Although the meaning of cloud computing may be different from one person to another, it is still all about sharing one purpose - providing information online.

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