Cloud Commerce: A Drift from E-Commerce to Cloud

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ABSTRACT

Electronic commerce is internet based commerce, which is rapidly developing throughout the globe. The adaption of cloud computing services in electronic commerce had improved tremendously the ease and use of the E-commerce. The vendors of E-commerce are already adopting the cloud services such as Supply chain management, Platform as a service (Pass) to associate with their business associates and people. Every E-commerce application has several familiar and fundamental services that are vital in their operations. In this paper here we propose a new cloud service called "Commerce as a service" that provides the fundamental needs for every e-commerce vendor. This commerce cloud provides the essential support for the use of e-commerce applications. The proposed cloud model supports various cloud users and vendors in using the commerce cloud services for a reliable, flexible and better service.

Keywords:

Electronic commerce, commerce, Cloud computing, Pass, Cloud, Cloud services, Supply chain management.

1. INTRODUCTION

Electronic commerce (E-commerce) is a term which doesn't require an introduction. Information revolution is dramatically reshaping the business model and pushing the world toward an "information economy "[1,2]. In recent years, E- commerce has experienced rapid development, in today's world of Information technology e-commerce play vital role. The rapid development of E-commerce ha s attracted a number of researcher s and engineer s with diverse backgrounds to direct their attention to a wide range of E-commerce related problems [1,2,3]. Cloud Computing is a recent and rapid developing technology in IT. Utilizing this technology for E-commerce provides a solution for certain problem that the researchers have identified earlier [4].

E-commerce impacts almost all commercial activities, including information gathering, shopping, trading, brokerage, banking, accounting, auditing, finance , auction, negotiation, collaboration, marketing , material supply, partnering, training, marketing , material supply, partnering, training, retailing[1,2,3,4].

Cloud computing is a form of parallel and distributed system where the resources are shared dynamically and services are provided to customers on demand. In this computing environment the users has to pay only for the duration they utilize the resources as it is called "pay –per usage". A Resource may be processor, network bandwidth, storage etc., the services offered by a cloud provider is classified as Infrastructure as a service (IAAS) where computing resources, storage space are provided to the customers on demand (Wuxi Cloud). Platform As A Service (PAAS) provides development environment as a service to the end users (Supply chain management), Software As A Service (SAAS) a single copy of software made available to customers on demand (Online Payment system). Clouds can be categorized in to three deployment models namely Private Cloud, Public Cloud and Hybrid Cloud. This paper is categorized into 7 sections namely:

2. RELATED WORK

A lot of research was done in the field of E-commerce. The earlier works on E-commerce are also focused on how to conduct business on the Internet. The business mode, trade security, qualification certification, E-banking and E-wallet realization, were all active topic. With the growing knowledge of "ho w to do it " , a large number of E-commerce companies sprang up around the world. There are many researchers around the globe who have pioneered in the area of e-commerce.

Cloud computing is another area where a lot of researchers and developers are working in it. Developing the existing applications with better features and performance. Cloud computing had changed the face of information technology with its unique features and properties. The cloud computing technology had provided a vast number of opportunities and explored many areas of Information technology [8]. The architecture of cloud computing had made certain reformation in the client –server and multi tier applications. Certain features of cloud computing had provided various services in the area of E-commerce.

3. PROPOSED SYSTEM

In this paper here we propose a cloud service named "Commerce as a Service (CAAS)" which enables the vendors and consumers of e-commerce as a service where the vendors can use the cloud service for developing native applications of e-commerce and the consumers are benefited by a reliable service and better availability of e-commerce applications. The commerce as a service enables the accessibility of the e-commerce applications to consumers and it also acts as a storage cloud for vendors of E-commerce by storing information about consumers of e-commerce applications [13].

The Commerce as a Service is used for providing services such as Physical storage, Virtual resources, Dashboard, Billing, Service management, Monitoring, Resource provision, Image Management and Service catalog and protocol. These are the essential services for any E-commerce application. These services are provides as cloud services which is enabled as pay- per –Use service. The architecture block diagram of the Commerce as a Service is shown below. The Commerce as a Service has three components named as Virtualized Resources, Cloud Services and Physical Resource. Each component has specific functions to be performed. The role of each component is discussed the later part of the section.
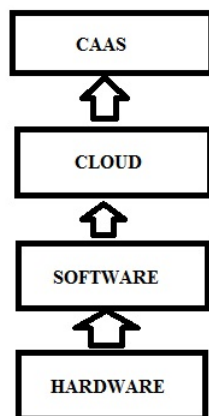
Fig.1. Block diagram of CAAS

3.1. Virtual Resources

The virtual resources is the bottom tier of the commerce as a service, it consists of components such as virtual servers for storage and network servers for providing accesses to data. In this component the e-commerce applications can be provided with the services such as storage space for storing information regarding the products, applications. It also stores the customer's information such as customer details, customer billing and shipping addresses. The virtual resources act as a data store for e-commerce applications. Here the component is enacted as a Platform as a Service for the e-commerce vendors who can use it

perform basic operations such as Entering and editing product information, Adding and Deleting product information, storing of Product images with its features specification. The end user connects to this component via internet for accessing the e-commerce application.

3.2. Cloud Services

The e-commerce application basic functionalities are available in this component, it provides the e-commerce user with all the features and functions which are categorized into Request resource and Manage resource functions. These functions are used for the user to request for a resource and maintain the information. These functions are supported by the other component. The physical resource and virtual resources play a vital role in providing the resources upon the request of the user. The cloud service activities are used by various users such as Cloud Admin, Vendors and customers of E-commerce applications [8, 13].

3.3. Physical Resource:

The physical resource is the last component of the commerce as a service. Here this component consists of the physical component of the network such as Servers, Network servers, Storage servers and Network Hardware which is associated with cloud service [1]. This component is called Physical resource since entire storage of information is physically available in this resource only. The architecture block diagram of the commerce as a service is shown in figure below. The arrows in the figure represent the flow of control and data in the architecture.
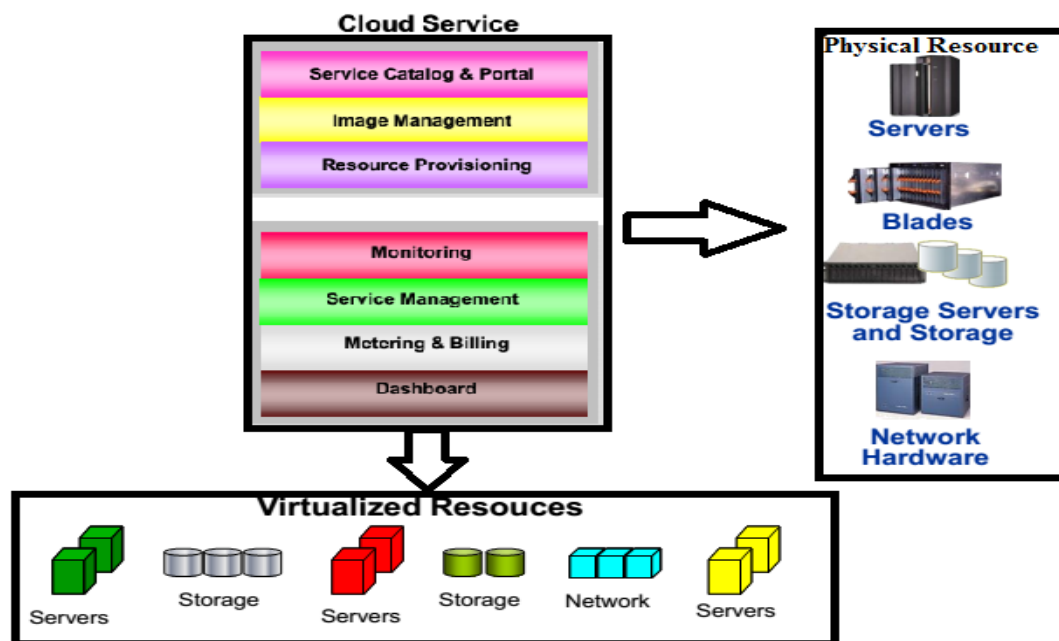

Fig. 2. Architecture of Commerce as a Service

4. IMPLEMENTATION ENVIRONMENT OF CAAS

The CaaS service is implemented in a cloud environment using the technologies like considering the hardware components such as blade servers and storage servers with Linux or other supporting operating systems which support the cloud services. For example we can use IBM TIVOLI, IBM Rational etc. software in implementing the CaaS. An application server such as Web sphere can be used for

performing the applications in the cloud. This Commerce as a Services environment provides various cloud services like Infrastructure as a service, Platform as a Service and Software as a service [8,13]. The e-commerce application can now access to his required e-commerce application by the cloud service provided using the user Interface layer. At a time multiple users can access multiple E-commerce applications. The implementation environment of the CaaS is shown in figure below.
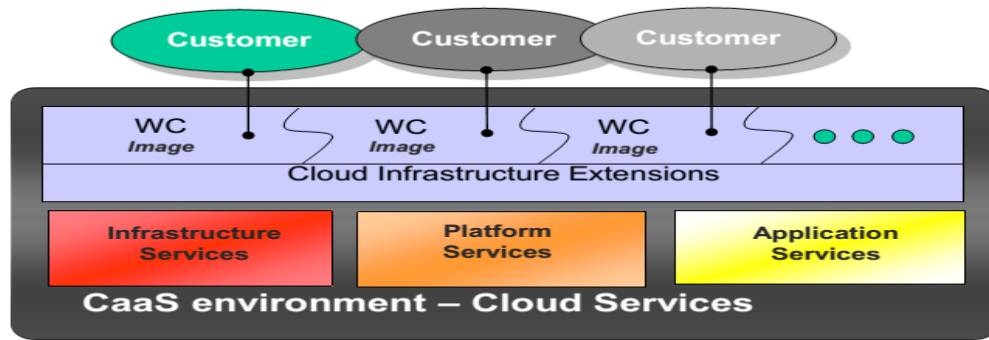
Fig. 3. CaaS Environment-Cloud Services

5. ADVANTAGES OF CAAS

The proposed system has many advantages out of which few of the advantages are:

a) Low entry barrier: The entry cost into the market is lowered as we pay only for the time period of using the service rather than establishing new infrastructure.

b) Low financial risk: Implies that the investment in establishing a E-commerce application is very less as it is a rental based application.

c) Integrate multi-channels business: Using single e-commerce application different vendors of e-commerce can be associated and for the end user it represents like a single e-commerce application but where many e-commerce vendors of different products can be associated.

d) Integrate data and analysis: Here the cloud service can be used for storing the information as well as for analyzing the customer buying patterns and identifying many other important activities related to sales and marketing in e-commerce.

e) Cooperation among staffs, customer and partners: Various e-commerce application vendors, customers and staff are associated as it is a centralized service.

f) Integration security: This application has high-end security when compared to a normal e-commerce web application.

g) Open source resources: As it is an open resource application many views and approaches can be visualized in order to achieve better flexibility.

h) Develops with customers: As the elasticity feature provides better service to customer the application services improve when more customers use the e-commerce application.

6. CONCLUSION

The Commerce as a Service system in e-commerce will enhance the productivity in the e-commerce applications, it reduces the investment costs and it also improves the computational power of e-commerce applications. The proposed system CaaS also encourages the cloud services and establishment of corporate cloud services by which the users are benefited as all the e-commerce applications are served under a single roof.

7. FUTURE WORK

The proposed Commerce as a Service not only encourages e-commerce market but it also improves the ability of the e-commerce applications. This entire e-commerce application can future be introduced as a global Commerce cloud where all e-commerce vendors across the world can associate and make the e-commerce global commerce.

8. ACKNOWLEDGEMENT

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