IMPACTS OF CLOUD COMPUTING ON E-COMMERCE BUSINESSES IN INDIA

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ABSTRACT

Cloud computing is one of the most emerging technology in information technology sector. In last few years, cloud computing has become from a theoretical concept into the real applications in different industries such as telecommunication and healthcare. Cloud Computing, uses Internet and remote servers to maintain user's data and applications. Itgive permission to customers and businesses to use applications without installation and access their personal files, data and information at any corner of the world with the help of internet. There are different types of software applications are running on the environment of cloud computing. E-Commerce is one of the major service of cloud computing. E-commerce in Small and medium business is need to provide better services to satisfy them. In this paper, we discussed how E-Commerce business effected by the cloud computing. Except this, it analyzed the driving-forces which led to the changes of E-commerce in era of cloud computing. In this paper e-commerce application model based oncloud computing and manage with the problem of e-commerce and the shortage of resources byestablishing the framework of e-commerce application based on cloudcomputing environment and how cloud computing effect E-Commerce services and applications.

Keywords: Cloud Computing, E-Commerce, Network Security, Business Models

I. INTRODUCTION

Since 2007, cloud computing has become from a theoretical concept into the real applications in different industries such as telecommunication and healthcare.[1] Cloud Computing, uses Internet and remote servers to maintain user's data and applications. Cloud Computing is a new and emerging technology innovation that bring the concept of virtualization of data and information storage in local infrastructure. It give permission to customers and businesses to use applications without installation and access their personal files, data and information at any corner of the world with the help of internet. It also provide the service of dynamic storage capacity, computing capacity, data and information exchanging capability using networking. The "cloud" is anallegory – it is abstraction hiding the complicated infrastructure of the Internet Technology. It is a low-cost usable option to the end users in which IT-related capabilities are given "pay-as-a-service", allowing users to access Internet technology, which supply and deliver to the users with Information Technology services according to their demands. According to the International Data Corporation in 2008 survey cloud computing is the best service for those developers or research projects and even for E-Commerce enterprises who are seeking quick solution and services for startup their work. Some experts evaluated the influence of cloud computing is higher than E-Commerce. E-Commerce is basically selling and buying of goods and services over network

using internet technology. E-Commerce Includes online shopping, Tickets Booking, Hotel Booking, Educations etc.. E-commerce providing services are very costly. Cloud computing provide feature to E-Commerce enterprises to reduce manpower, financial and material cost to implement E-Business system and also maintenance of back-end services or software. These all task can be maintained by cloud computing service providers. E-Commerce is a typical industry which is being effected by the features of the cloud computing services. In this paper we discuss the effects of cloud computing on E-Commerce business and gives suitable suggestion on improvement of E-business in the Cloud environment.

II. RELATED WORK

The paper concentrates on how cloud computing environments impacts on E-Commerce, the main background of the influences of cloud computing has to be established.

The impact of cloud environment has been discussed by different literatures. Firstly, Kasherfi, F., Et al.[2] consider the impacts of cloud environment on the processes and present a new method of cloud computing. The paper discuss the positive impacts of cloud environment on e-commerce small and big companies and organizations such as yahoo, Google, etc. In this, authors highlight the technical influence of cloud computing rather than its business impacts. Lai, S.[4] examine the influence of cloud computing on traditional software project and figures out the softwares replaced by cloud computing. Mainly, it process the security strategies, migration and the corresponding tools. Li J. and Liu J.[1] examine that the lack of teaching resources which are averting the educational in rural China. According to the authors, cloud computing help to solve the problems. However, all these possible benefits of cloud computing environment are only discussed. Zhang, H.[12] point out that cloud technology will become the best choice of the virtual operation process due to its features such as security and reliability and cloud computing can be applied in different levels in management process.

In the Related work review, there are mainly three problems with the existed researches: firstly, few research mentions the impact of cloud computing environment on E-commerce. Actually, the fastly development of E-commerce requires the participation of cloud computing environment into its technical framework, business architecture and services. As a result, the development of e-commerce businesses and industry will be significantly impacted. Secondly, the existed research usually focuses on one or two aspects of cloud computing's impacts on a specified field. There is no paper that offers the comprehensive analysis of the impact of cloud computing on e-commerce business. Finally, few researches gives the case analysis to make the points more persuasive. By virtue of describing the changes of E-commerce in the cloud era, the paper analyzes the impacts of cloud computing on E-commerce enterprises and industry chain in detail.

III. THE APPROACH OF CLOUD COMPUTING

Today, there are many detonations of cloud computing. As according to Wikipedia, Cloud computing includes deploying groups of multiple remote servers and software networks that permit different kinds of data sources which can be uploaded for real time processing for the generation of results without the need to store (processed) data on the cloud. In short, it uses the public for calculation or other way to shared information and resources.

IV. DEPLOYMENT MODEL OF CLOUD COMPUTING

It is most primary to decide which type of cloud model is selected for secure cloud services. There are basically three types of deployment model in cloud computing.

Figure 1. Development Model of Cloud Computing

4.1 Public Cloud

A cloud is called a "public cloud" when the cloud computing service are given over a network that is open only for publicly use. This model is based on pay-per-use method, same as prepaid electric meter technology. It is ideal for businesses seeking less complex Information technology hosting. Public cloud allows user's access to the cloud via interfaces using mainstream web browser. Applications run on it have either seasoned demand or unforeseeable traffic. It is less secure cloud models

4.2 Private Cloud

Private cloud model is designed with organization's internal enterprise data center. Here scalable resources and virtual services are provided by the cloud vendors are combine together and available for cloud users to share and use Only the organization people and designated stakeholders may have use to operate on a specific private cloud. Thus, private cloud model is much more secure than public cloud model. Just like Intranet, all the resources and applications are managed by organization itself.

4.3 Hybrid Cloud

Hybrid cloud is a combination of both public cloud model and private cloud model which is centrally circumscribed and managed by a secure network. It gives more secure control of the data and applications and provides various parties to access data and information over the Internet.

V. CLOUD COMPUTING DELIVERY MODEL

After cloud deployment models, there are three types of cloud delivery models. Delivery models are as follows-

5.1 Infrastructure as a Service (Iaas)

IaaS is a single layer cloud model where cloud computing vendor's dedicated resources are only shared with contracted users at pay-per-use service. This model is also provides different degrees of financial and functional pliability which is not found in inside data servers or with co-location services, because computing resources can be added or released much more quickly and cost-effectively than in an internal data servers As a initial investment cost of computer servers, results, networking devices, processing power etc. are minimized.
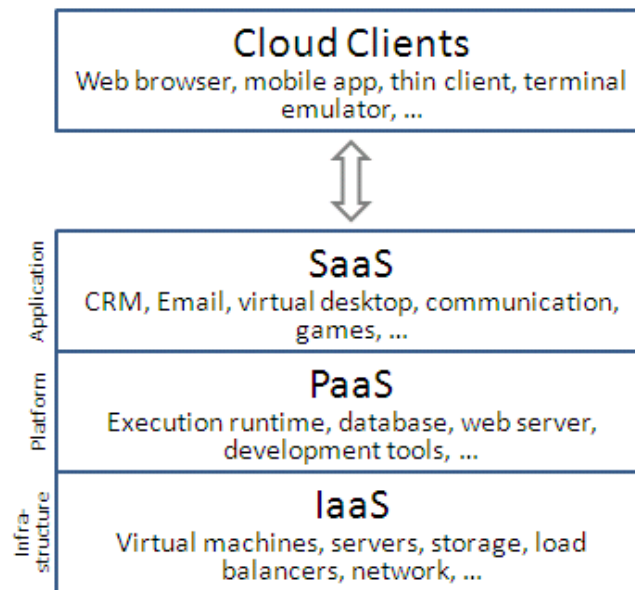
Figure 2. Delivery Model of Cloud Computing

5.2 Software as a Service (Saas)

 SaaS is based on pay-per-use basis costing model where software applications are leased out to contracted organizations by specialized SaaS sellers. SaaS giver may host the software either in their own data network center. Initially software has limited functionality, it can be easily customized based on demand which is billed accordingly Softwares are accessed using secured web browser over the Internet. Web services (WS) security, XML encryption, Secure Socket Layer (SSL) etc is used in enforcing data protection transmitted over the Internet.

5.3 Platform as a Service (Paas)

PaaS cloud model layer is similar to IaaS model with an additional "rented" features. Virtual machines are secured against unauthorized attacks such as cloud malware and hackers. PaaS model services are expensive than IaaS and SaaS. Cloud sellers and users need to maintain cloud computing network security at all interfaces. In a virtual platforms physical resources, infrastructures as well as business applications and middlewares environment are being consumed as services in the cloud models

VI. E-COMMERCE AND ITS MODELS

Electronic commerce is one of the main criteria of revolution of Information Technology and communication in the field of economy. The Current edge for business today is Electronic Commerce, it refer to electronic transaction such as buying, selling, information flow and fund transfer over the internet. E-commerce broadly encompasses all business activities taking place over internet. E-commerce has the following Models:

➢ Business-to-Business (B2B): the transaction between business enterprises.
➢ Consumer-to-Business (C2B): this mean the customers selling products and services to the Business Enterprises.
➢ Business-to-Consumer (B2C): this means the transaction among Business Enterprises and customers.
➢ Consumer-to-Consumer (C2C): this mean the business transaction among users or consumers.

VII. CLOUD COMPUTING AND ELECTRONIC COMMERCE (E-COMMERCE)

Cloud Computing and E-commerce are now two important part in our daily uses. Due to cost beneficial both are famous. Cloud computing service saves enterprise's the cost of Information Technology infrastructure, on the other hand E-commerce provides traders to do business without renting or buying a business entity shop. Cloud gives positive opportunities for e-commerce, but before use it, organization should have a trade-off between costs. Many researcher illustrate that cloud computing and E-commerce the most attractive industries. That has been developed at fastly in recent years, with the Economic, Political, Technological and Sociological factors have had a positive impact on its development. E-commerce and cloud computing are described as follow by several researchers:

➢ The quick growth of the global economy increase the developing of online web based transactions.
➢ Online shopping is becoming a new trend as it is more convenient comparing to traditional way of shopping.
➢ The security of data and information technologies are improved rapidly.
➢ Because of this, the level of education and IT skills of customers have been improved.
➢ The developing of telecommunications techniques accelerate the implement of e-commerce Industry across all over the world.
➢ Cloud Computing give chances for small-scale and middle-scale business companies to move to the Internet technology with less efforts

VIII. A FRAMEWORK FOR E-COMMERCE BASED ON CLOUD COMPUTING

Cloud computing enables the users to make use of the network resources in cost-effective and free manner in place of traditional architectural model and it also helps to get rid of the effect caused by failure of single computer equipment like the loss of data, unavailable devices and so on. With the help of cloud computing, the large number of users need not to buy their own software and hardware, even need not to bother about that who is providing the service, so that you can focus on the core services and resources that you really needed. If the cloud-based e-commerce service is based on the basic application form known as e-commerce cloud .we can describe the overall picture of infrastructure of the e-commerce cloud, as shown in Figure 2.
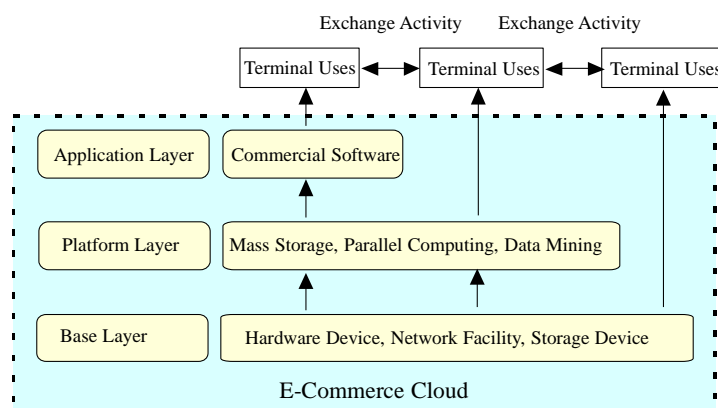

Figure 2. A Framework for E-commerce Cloud

8.1 The Base Layer of E-Commerce Cloud

IT infrastructure resources are shared by the base layer of e-commerce cloud and also connects the various service providers huge system and pool them together to provide services. Cloud computing allows to access data resource in secure and scalable way and allows to share the hardware resource and make use of hardware layer to run in the most likely way. A technology called Virtualization is used to separate the physical hardware from operating system. And it results in one hand that it can make computation, division of storage capacity of the Existing server into smaller size and then its re-integration make possible the utilization of IT resources in improved way and provide flexibility And on other hand it enables large scale cloud computing integration on a common interface and also enables the publication of calculation. Basic hardware resources for the platform layer can be provided by base layer and just like ordinary local devices it can also be used by users.

8.2. The Platform Layer of E-Commerce Cloud

The task which had been difficult to complete now with the help of powerful hardware can be possible to done, like :- task of data storage carried out by platform layer, computation and software development, task of computation of original mass storage can be achieved, business intelligence processing possible and so on. Now choosing of devices by the users and on the basis of complexity of dealing with content the number of devices depends. Strong level of flexibility is possible by Virtualization technology.

8.3. The Application Layer of E-Commerce Cloud

Professional company of e-commerce provides the application software or services and use the e-commerce system to pay for getting the benefit of lower cost and remove wastage and make able to use more resources which help to run the business activities smoothly. Cost is determines on demand-access

IX. INFLUENCES ON E-COMMERCE BACKEND SERVICE MODE

Cloud computing offers new mode of services which are different from traditional IT services. First of all, E-commerce enterprises service by virtue of the cloud platform offers IT resources like software, hardware, infrastructure and data. Secondly, E-commerce Company is allowed to access the IT resources just like the utility services on the cloud platform and pay for them for their services. Through renting system, no firm has required to incur high expenses on purchasing of devices, they can choose appropriate and suitable devices and pays rent for their services. In short, due to the emergence of cloud computing ,the concept of traditional IT licensing mode changed and a new philosophy of services is came into existence which provides the benefit of low cost. Cloud computing migrates outsourcing into E-commerce is a significant contribution because with the help of it standardized and uniform service platform can be established by a business which performs as per customers' demand. A contract based outsourcing is done in which E-commerce delivers the backend process that it has to be completed. The close end services which are changed by the service provider to conduct local technical support is called outsourcing. Reduction of cost, improving efficiency as well as service quality and improving the core competencies of an organization are the primary objectives of outsourcing. Cloud computing enables the E-commerce enterprises to focus on the core businesses and sets them free from the complicated technical architectural planning, designing and maintenance. Typical example of the new outsourcing based on cloud computing is virtual business.

X. INFLUENCES ON E-COMMERCE BUSINESS STRATEGIES

Due to expanding era of business towards cloud computing, long term strategies are made by involving cloud computing by famous e- commerce businesses such as Google, Amazon, Alibaba. Reasons or forces responsible for migration of cloud computing into e-commerce strategies are:- 1) As the improved services are given by e-commerce due to rapid information technology like lower cost benefit, higher efficiency, diversity and more flexibility its demand increases. For instance, online loan services are offered by the Alibaba, the biggest B2B e-commerce enterprise by virtue of cloud computing as it helps in credibility evaluation of the customers. 2) As due to emergence of cloud computing in e-commerce enables to store data in small size and then re-integrate that so small and medium scale firms can also afford it. 3) High quality architectural facility and quick access of information lead its demand

XI CONCLUSION

In this research we believe that, we can create an E-Commerce service model based on cloud computing by means of cloud computing services such as mass data storage, high-speed computing capabilities, as well as its perfect allocation and the sharing of resources. The new emerging technology of cloud computing is creating a new ecosystem service which will combine all the E-commerce services and facilitate the new service modes. Cloud computing help companies to attain more efficient use of their Information Technology hardware and software investments and give a means to speed up the acceptance of innovations. Cloud computing service has enabled teams and organizations to streamline lengthy acquisition processes.

Cloud computing is still a very new technology and we still having more room for improve the service of cloud computing. In the traditional E-commerce enterprises, an proper strategy of implement in the cloud computing era is to cuddle cloud computing rather than avoiding on it. Only when the E-commerce include cloud computing in the business strategy and establish the core competencies, can they realize the sustainable development

XII. SUGGESTIONS

E-Commerce business is a new business mode by computer networking through internet, so it should concentrate on the core competencies and activities of the business. It should give due attention on the effective management and operation of the business. As E-commerce enterprises lays more stress on online software, there market share starts decreasing greatly so, E-commerce business enterprise should not pays much stress of cost increment as cloud computing will cope up with that. Reduction of information technology cost is not a big issue today due to introduction of cloud computing. So, it is suggested that E-Commerce business have to take full benefit of cloud computing to increasing quality in their work and in this way with the cooperation of cloud computing a new pathway will open for the small and medium level businesses and e-commerce can reach at new heights.

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