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IMPLICATIONS OF CLOUD COMPUTING ON E-COMMERCE 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. 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. 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 on cloud computing and manage with the problem of ecommerce and the shortage of resources by establishing the framework of e-commerce application based on cloud computing environment and how cloud computing effect E-Commerce services and applications.

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

I. INTRODUCTION

Cloud computing, which makes use of the Internet and remote servers to maintain user data and applications, has evolved from a theoretical concept to a practical application in a variety of sectors, including healthcare and telecommunications[1].The idea of virtualizing data and information storage in local infrastructure is brought to life by cloud computing, a brand-new technology innovation. It grants customers and businesses permission to access their personal files, data, and information from anywhere in the world via the internet by using applications that do not require installation. Additionally, it uses networking to provide the service of dynamic storage, computing, and data and information exchange capabilities. An allegory, the "cloud" conceals the intricate Internet Technology infrastructure behind an abstraction. It is a low-cost, usable option for end user that offers IT-related capabilities as "pay-as-a-service," making it possible for users to access Internet technology and receive Information Technology services tailored to their needs. In a 2008 survey, the International Data Corporation found that cloud computing is the best service for developers, research projects, and even e-commerce businesses looking for quick solutions and services to get their work up and running. Experts determined that cloud computing has a greater impact than e-commerce. The selling and buying of goods

and services over a network using internet technology is referred to as e-commerce. E-commerce includes things like online shopping, booking tickets, hotels, and educations. E-commerce services are very expensive. E-commerce businesses can benefit from cloud computing's feature of lowering the labor, financial, and material costs of implementing an E-Business system as well as the upkeep of back-end software or services. Cloud computing service providers are able to manage all of these tasks. One common industry that is being affected by the features of cloud computing services is e-commerce. The effects of cloud computing on e-commerce businesses are the subject of this paper, which also includes recommendations for improving e-commerce in the cloud.

II. Literature Reviews (Related Work)

The primary background of the influences of cloud computing must be established because the paper's focus is on how cloud computing settings affect e-commerce. Various works of literature have discussed the effects of cloud environments. First, Kasherfi, F., et al. [2] investigate how the cloud environment affects operations before introducing a novel cloud computing technique. The benefits of the cloud environment for both large and small e-commerce businesses, including Google, Yahoo, and others, are discussed in the paper. Instead than focusing on the business effects of cloud computing, the writers emphasise its technological significance. Lai, S.[4] analyses how cloud computing has affected traditional software projects and determines which softwares it has replaced. It primarily processes migration plans, security tactics, and corresponding tools. Li J. and Liu J.[1] study how a shortage of instructional materials is hindering schooling in rural China. The authors claim that cloud computing aids in problem solving. All of these potential advantages of the cloud computing environment are merely hypothetical. According to Zhang, H.[12], cloud computing would be the greatest option for virtual operations because of its properties like security and dependability and the fact that it can be used at various levels of management. There are primarily three issues with the existing research, according to the review of related work: First of all, there aren't many studies that discuss how the cloud computing environment affects e-commerce. Actually, the rapid growth of e-commerce necessitates the incorporation of cloud computing into its technological foundation, organisational structure, and services. As a result, there will be a big influence on how e-commerce enterprises and the industry evolve. Second, the existing study frequently concentrates on just one or two elements of how cloud computing affects a particular industry. There is no publication that provides a thorough review of how cloud computing has affected e-commerce businesses. Finally, a few studies provide case studies to strengthen their arguments. The study studies the effects of cloud computing on E-commerce firms and industry chain in depth by outlining the changes in E-commerce in the cloud age.

III. THE APPROACH OF CLOUD COMPUTING

There are several cloud computing explosions happening right now. As stated by Wikipedia, cloud computing entails setting up networks of several remote servers and software programmes that enable various data sources to be uploaded for real-time processing in order to provide results without the need to keep (processed) data on the cloud. In other words, it uses the general public to calculate or exchange resources and information in different ways.

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.

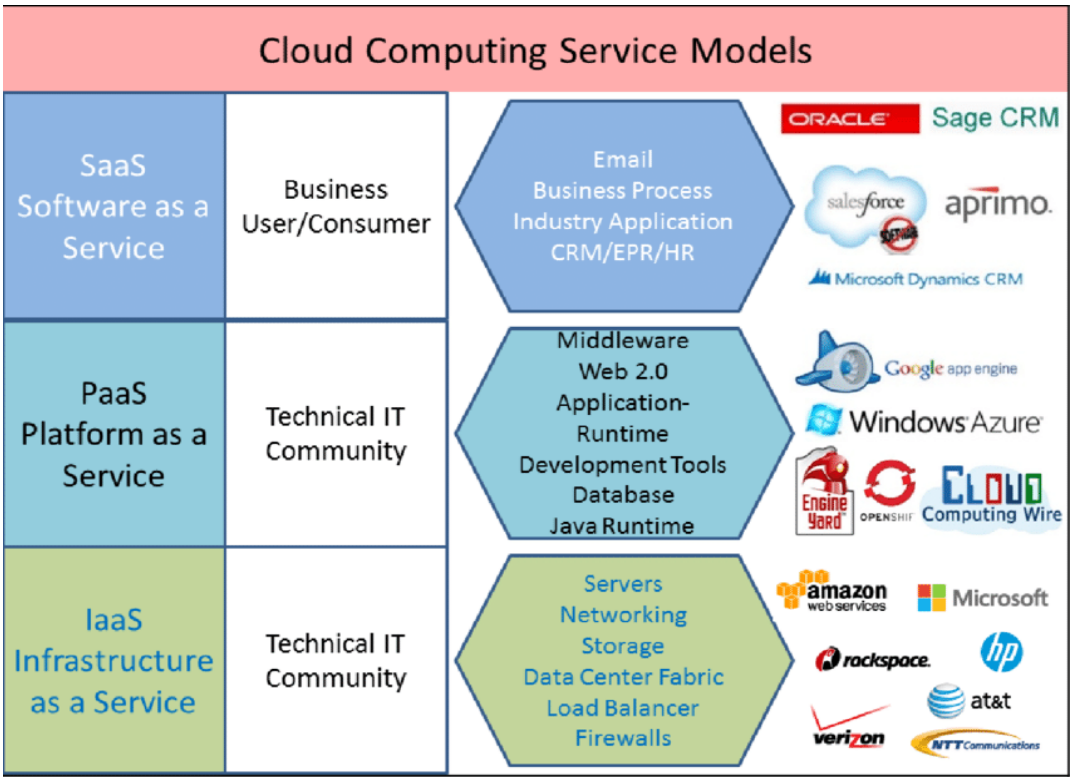

Figure 1. Development Model of Cloud Computing

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 follows5.1 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.

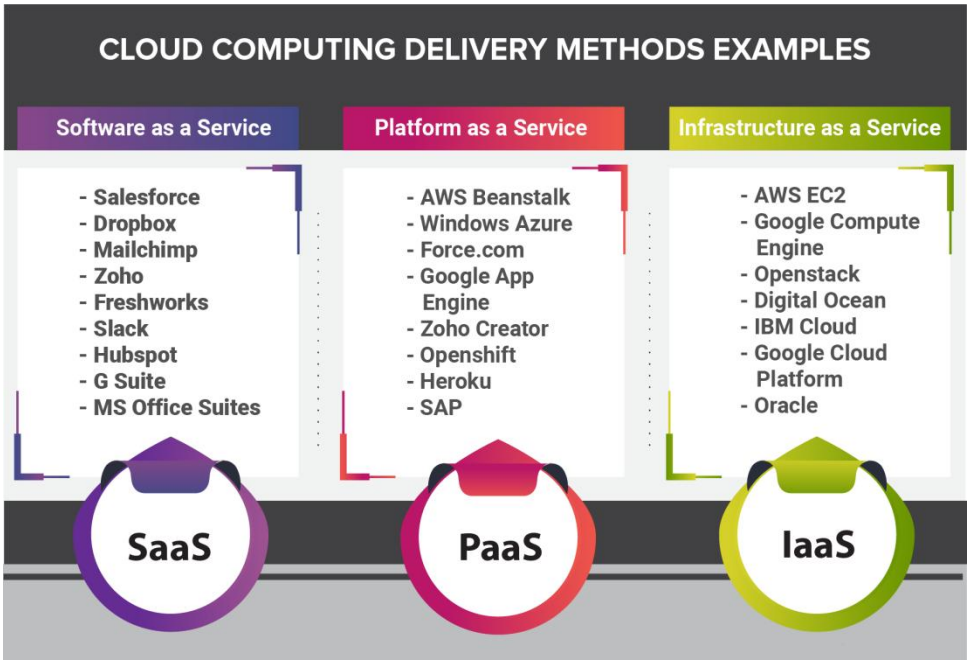

Figure 2. Delivery Model of Cloud Computing

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.

6.1 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.

6.2 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.

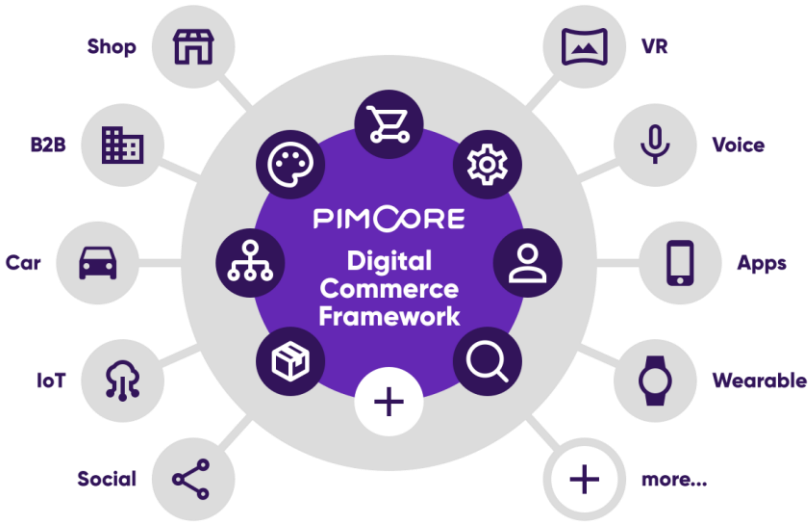

Figure 3. A Framework for E-commerce Cloud

6.3 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.

6.4. 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.

6.5. 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.

6.6 Influences On E-Commerce Backend Service Mode

Cloud computing offers new mode of services which are different from traditional IT services. First of all, Ecommerce 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

6.7 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 ecommerce 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 ecommerce 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.

VII 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.

VIII. 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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