



Role and Challenges in Cloud Computing and E-commerce in SME's

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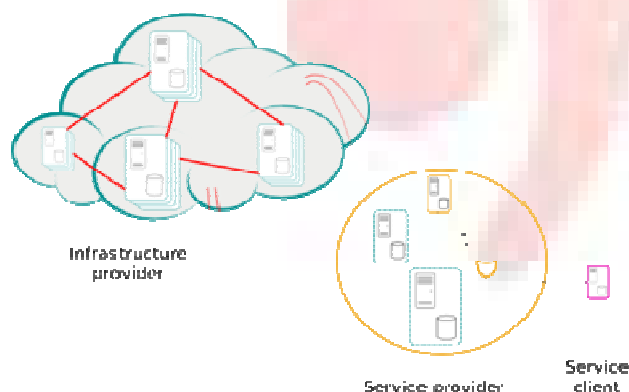
Abstract: Today cloud computing is spreading like air across the world. Cloud computing helps in solving challenges faced by Small and medium enterprises (SME's) in term of cost-effectiveness, security, availability and Information Technology resources like hardware, software and services etc. E-commerce in Small and medium enterprises (SME's) is need to serve the customers better services to satisfy them and provide them customized services. For last two decades these SME's enterprises faced many issues and challenges in their business like lake of resources, security and high implementation cost and so on. This article demonstrate the literature review of the benefits can be served by cloud computing and the issues and challenges that E-commerce Small and medium enterprises (SME's) faced, and how cloud computing is useful in solving these issues. This paper represents the methodology that will be used to collect data to see how far the cloud computing has influenced the E-commerce in small and medium enterprises in India.

Keywords: SME's, E-commerce, Cloud, Computing, enterprise, review

I. INTRODUCTION

Today information technology (IT) plays an important role in the business enterprises and it is useful to create the products, services to the enterprise for their customers. Nowadays, the growing of IT innovation led the business enterprises to make a decision regarding adoption of advanced technology to solve the organization's computing requirements, to support their services, products and to satisfy their business operation need to create a large infrastructure of Information technology and resources employment. One of these technologies is "Cloud computing". The cloud can give access to the business organizations in general and specifically for small and medium enterprises (SME's). These Privileges includes cost saving, availability, services, security and resources etc. Cloud Computing is a computing services like E-mail, customer relationship management (CRM), office application and exchange of useful information over internet between different departments of the enterprise. Cloud computing concept has been discussed widely and has been implemented by many enterprises. Among the reasons claimed are the flexibility and efficiency that become a must for business enterprises to do business. Electronic commerce (E-commerce) in small and medium enterprises (SME's) nowadays become eminent and most of the enterprises facilitated the E-commerce to earn profits, but these SME's have faced several issues and challenges with respect to security, cost of implementation and cost saving, high performance of services and infrastructure facilities etc. Cloud computing technology can solve many problem which are faced by the Small and medium enterprises (SME's) by giving them high performance of services, infrastructure, cost saving and security of business.

II. CONCEPT OF CLOUD COMPUTING



Many researcher defined cloud computing differently, according to "moving computer applications and programs to the Internet from the desktops". NIST define the cloud computing as "Cloud computing is a model for enabling convenient, on demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction." According to the above definition of NIST there are four main services classified as cloud services which are; Cloud providers and infrastructures, cloud platforms, cloud softwares and cloud data storages. Many researchers, focused on three classifications which are Infrastructure as a Service (IaaS), Platform as a Service (Paas) and Software as a Service (SaaS).



III. LAYERS OF CLOUD COMPUTING

Cloud computing has three types of layers which consists Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS). Infrastructure as a Service (IaaS) the capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer can deploy and run logical software, which can include operating systems (OS) and applications of it. The consumers do not manage or control the fundamental cloud infrastructure but has control over operating systems; storage capacities, deployed applications, and possibly limited control of select networking components i.e. host firewalls. Platform as a Service (PaaS) the capability provided to the consumer is to deploy on to the cloud infrastructure consumer-created or acquired applications made by using programming languages and tools supported by the service provider. The consumers do not manage or control the fundamental cloud infrastructure like network, servers, operating systems, or storage, but has control over the deployed applications and possibly application hosting environment configurations. Software as a Service (SaaS) the capability provided to the consumer is to use the service provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through a thin client interface such as a web browser i.e. web-based email. The consumers do not manage or control the fundamental cloud infrastructure like network, servers, operating systems, storage, etc. application capabilities, with the possible exception of limited user-specific application configuration settings.

IV. DEPLOYMENT OF CLOUD COMPUTING TECHNOLOGY

Cloud deployment consisting four models firstly Public cloud, secondly Private cloud, thirdly Hybrid cloud and fourth one is Community cloud. Services and resources clouded over internet to provide web site services and resources online are known as public cloud. These public clouds offer services for organizations and users to provide advantage for the web site shared resources. A private cloud is the cloud infrastructure is operated solely for an enterprise. It may be managed by the organization or a third party and may exist on premise or outside the premise. The major objective of private cloud is to share the data, services and resources between the employees within the business organization. Hence, through private cloud provide efficient work environment to maximize the efficiency and performance of the organization's outcomes and save both the time and costs. The Hybrid Cloud is blend between private and public cloud. Through hybrid cloud the business organization is able provide some tasks by using public cloud and several other tasks by using private cloud.

V. MERITS OF CLOUD COMPUTING

There are many advantages of cloud computing, based on cloud computing supports Cost saving, scalability, Availability, Innovation speed, Efficiency, easy management etc. The following set of benefits that offered by cloud computing are:

1. **Cost Saving:** By having cloud computing the business organizations can reduce the amount to be spent on implementation or installation of Information Technology resources.
2. **Availability:** There are many cloud service providers are offering high availability of it.
3. **Rapid Innovation:** In compare of the traditional information technology services, cloud services can be provisioned with just a few hours rather than weeks or months.
4. **Efficiency:** With the efficiently availability of IT a business organization can focus on its core business and invest innovatively into the research and development. This can be possible through implementation of cloud computing.
5. **Ease of Management:** In cloud computing maintenance of infrastructure, hardware or software are easy to manage.

The above advantages offered by the cloud can influence many business organizations to make decision regarding adoption of the cloud computing.

VI. E-COMMERCE IN SMALL AND MEDIUM ENTERPRISES (SME'S)

The E-commerce or Electronic Commerce can be defined as any operation of transaction and selling products online between organization and any third party it deal with its E-commerce. E-commerce has the following categories:

1. Business-to-Business (B2B): its mean the E-transaction among business enterprises.
2. Business-to-Consumer (B2C): this means the Business Enterprises sell directly to the consumers.
3. Consumer-to-Business (C2B): its mean the Consumers selling products to the Business Enterprises.
4. Consumer-to-Consumer (C2C): its mean the business transaction between users or consumers. The users or consumers sell products among them through internet for example www.olx.in.

VII. MERITS OF ELECTRONIC COMMERCE (E-COMMERCE)

Nowadays the people can buy and sell anything without presence of any market or shop just they need an internet and computers or mobiles to selects what they want from the popular E-commerce sites in the internet. It is convenient and flexible to both the seller and the buyer. The benefits to Consumers are the buyers will find the ease and convenience with E-commerce, and will gain more time than going to the shop to buy what they wants. The customers can surf more than one vendor in the same time



and compare the products and services offering. The benefits to business enterprises have been summarized the benefits of e-commerce to business as under:

Advantages to the Business Enterprises:

1. E-commerce provides a global marketplace for businesses. With e-commerce, business enterprises can have access to people across the globe.
2. E-commerce helps in saving operation cost for business enterprises because the cost of storing, processing, distributing and telecommunication has been reduced.
3. The pull-type processing of e-commerce allows the business enterprises to design customize products and services according to the customer's requirements.
4. E-commerce enables the digitization of products and services like software and music video etc. can be downloaded directly from the Internet by customers.
5. E-commerce breaks the limitations of working time. Business enterprises can contact its customers and suppliers at any time.

Advantages to the Society:

Society can also be benefited from E-Commerce from the following perspectives. As ecommerce allowing people working from home, it enhances the quality of life for people in the society. It is not only more convenient for people but also reduces environmental pollution potentially because fewer people have to travel to work regularly.

1. People in rural areas can have access and enjoy products, services and information through e-commerce.
2. E-commerce is useful in proving public services such as health services. It is easy and famous to consult doctors or nurses online nowadays.

VIII. CHALLENGES AND ISSUES IN ELECTRONIC COMMERCE (E-COMMERCE)

E-Commerce is facing many issues and challenges in small and medium enterprises (SME's) to support their works and customers. These challenges can be summarized follow:

1. E-Commerce Small Medium Enterprises have to incur high implementation cost to provide better services to their customers.
2. Due to lack of technological skilled resources and technical people E-Commerce services are not able to provide competitive advantages to the Small and Medium enterprises (SME's).
3. The personal information of customers like recent purchase, income, address, credit card number, credit history etc. are collected electronically through internet by SME's which sometime lead to issues like privacy and security of the data.

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

Cloud Computing and e-commerce are two important platforms nowadays. They are famous because both of them are cost-effective. Cloud computing saves business organization's the cost of Information Technology infrastructure, on the other hand E-Commerce allows traders to do business without renting or buying a business entity shop. Cloud provides positive opportunities for e-commerce, but before adopting it, companies should have a trade-off between costs. Many researcher illustrate that cloud computing and E-commerce the most attractive industries has being developed at high rate in recent years, with the Political, Economic, Sociological and Technological factors have had a positive influence on its development. E-commerce and cloud computing can be explained as follow by several researchers:

1. The rapid growth of the global economy accelerates the developing of online web based business transactions.
2. Online shopping is becoming a new trend as it is more convenient comparing to traditional way of shopping.
3. The information security technologies are developing rapidly.
4. Due to this the level of education and IT skills of consumers have been improved.
5. The developing of telecommunications infrastructure accelerates the development of e-commerce Industry across the world.
6. Cloud Computing provides opportunities for small-sized and middle-sized companies to move to the Internet with less effort.

X. CONCLUSION

Cloud computing services can support and provide opportunity to Small and medium Enterprises in general and E-commerce Small and medium enterprises in specific, due to the lack of IT-resources and infrastructure. However, cloud computing can be



beneficial to the SME's and in the same time there are several issues and challenges that should be taken into consideration while applying cloud. The adoption decision of cloud computing by Ecommerce SME's will make significant changes in the business enterprises. The aim of this research article is to investigate the behavioral intention of E-commerce Small and Medium Enterprises to use or not cloud computing technology among E-commerce Indian business enterprises. Besides this research article is reviews of cloud computing and E-commerce previous study have been done by eminent researchers to give illustration about the cloud computing and E-commerce by many perspectives and the problems that may face the E-commerce SME's implementation among Indian E-commerce small and medium enterprises.

REFERENCES

1. Bayrak, E., Conley, J.P., and Wilkie, S.: 'The economics of cloud computing', *The Korean Economic Review*, 2011, 27, (2), pp. 203-230
2. Mell, P., and Grance, T.: 'The NIST definition of cloud computing. National Institute of Standards and Technology', *Information Technology Laboratory*, Version, 2009, 15, (10.07), pp. 2009
3. Creeger, M.: 'Cloud Computing: An Overview', *ACM Queue*, 2009, 7, (5), pp. 2
4. Durkee, D.: 'Why cloud computing will never be free', *Queue*, 2010, 8, (4), pp. 20
5. Lin, J., Fu, D., and Zhu, J.: 'What is Cloud Computing?', *IT as a Service*, 2009, 11, (2), pp. 10
6. Viega, J.: 'Cloud computing and the common man', *Computer*, 2009, 42, (8), pp. 106-108
7. Vaquero, L.M., Rodero-Merino, L., Caceres, J., and Lindner, M.: 'A break in the clouds: towards a cloud definition', *ACM SIGCOMM Computer Communication Review*, 2008, 39, (1), pp. 50-55
8. Weinhardt, C., Anandasivam, D.-I.-W.A., Blau, B., Borissov, D.-I.N., Meinel, D.-M.T., Michalk, D.-I.-W.W., and Stöber, J.: 'Cloud computing—a classification, business models, and research directions', *Business & Information Systems Engineering*, 2009, 1, (5), pp. 391-399
9. Mell, P., and Grance, T.: 'The NIST definition of cloud computing (draft)', *NIST special publication*, 2011, 800, (145), pp. 7
10. Armbrust, M., Fox, A., Griffith, R., Joseph, A.D., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., and Stoica, I.: 'A view of cloud computing', *Communications of the ACM*, 2010, 53, (4), pp. 50-58
11. Brian, H., Brunschwiler, T., Dill, H., Christ, H., Falsafi, B., Fischer, M., Grivas, S.G., Giovanoli, C., Gisi, R.E., and Gutmann, R.: 'Cloud computing', *Communications of the ACM*, 2008, 51, (7), pp. 9-11
12. Jadeja, Y., and Modi, K.: 'Cloud computing-concepts, architecture and challenges', in Editor (Ed.)^(Eds.): 'Book Cloud computing-concepts, architecture and challenges' (IEEE, 2012, edn.), pp. 877-880
13. Wyckoff, A.D., and Colecchia, A.: 'Economic and Social Impact of Electronic Commerce: Preliminary Findings and Research Agenda' (Organization for Economic Cooperation and Development (OECD), 1999, 1999)
14. Kaynak, E., Tatoglu, E., and Kula, V.: 'An analysis of the factors affecting the adoption of electronic commerce by SMEs: Evidence from an emerging market', *International Marketing Review*, 2005, 22, (6), pp. 623-640
15. Ang, S.K., and Husain, W.: 'A study on implication of adopting e-business technology by SMES', in Editor (Ed.)^(Eds.): 'Book A study on implication of adopting e-business technology by SMES' (2012, edn.), pp. 5-6
16. Chu, C., and Smithson: 'E-business and organizational change: a structural approach', *Information Systems Journal*, 2007, 17, (4), pp. 369-389
17. Buyya, R., Yeo, C.S., Venugopal, S., Broberg, J., and Brandic, I.: 'Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility', *Future Generation computer systems*, 2009, 25, (6), pp. 599-616