Prestige e-Journal of Management and Research
Volume 4 Issue 2 (October, 2017) and Volume 5 Issue 1(April, 2018)
ISSN 2350-1316

FACTORS AFFECTING CLOUD COMPUTING AWARENESS

Arnav Chowdhury*

Cloud computing in the global scenario has certainly changed the way of traditional computing to modern computing. In India the level of popularity of cloud computing is increasing at a brisk pace. Although in many parts people are using such technologies but they are unaware about the technological term 'Cloud computing'. The sample of the study is Indore, the largest city of central India. The objective of the paper is to identify the factors affecting awareness of cloud computing among the people of Central India. The study also explored that the awareness and usage of cloud computing among people.

Keywords: *Global Scenario, Traditional Modern, Central India, Technology*

*Assistant Professor, Prestige Institute of Management& Research, Indore (MP)

INTRODUCTION

Cloud computing is the concept of this decade only. Earlier people used to save their important documents on their mailboxes and so that while travelling anywhere in the world that data could be accessible to them. Hence few organizations like Google had decided to make an effort so that we can create, edit, delete and save our data directly on the server itself without even downloading it. This leads to the concept of Cloud Computing. The concept of cloud computing was first introduced by Google with the name of Google Drive where we can perform out daily tasks related to a document. The place where the data is saved in the server is termed as 'Cloud'. The goal of Cloud Computing is to share resources among the cloud service consumers, cloud partners, and cloud vendors in the cloud value chain. The resource sharing at various levels result in various cloud offerings such as infrastructure cloud (e.g. hardware, IT infrastructure management), software cloud, application cloud (e.g. Application as a Service, UML modeling tools as a service, social network as a service), and business cloud (e.g. business process as a service).

Cloud computing represents a different way to architect and remotely manage computing resources. One has only to establish an account with Microsoft or Amazon or Google to begin building and deploying application systems into a cloud. These systems can be, but certainly are not restricted to being, simplistic. It can be web applications that require only http services. It might require a relational database, web service infrastructure and message queues. There might be need to interoperate with CRM or e-commerce application services, necessitating construction of a custom technology stack to deploy into the cloud if these services are not already provided there. They might require the use of new types of persistent storage that might never have to be replicated because the new storage technologies build in required reliability.

Service Models

Once a cloud is established, how its cloud computing services are deployed in terms of business models can differ depending on requirements. The primary service models being deployed are commonly known as:

• Software as a Service (SaaS) — Consumers purchase the ability to access and use an application or service that is hosted in the cloud. A benchmark example of this is Salesforce.com, as discussed previously, where necessary information for the interaction between the consumer and the service is hosted as part of the service in the cloud. Also, Microsoft is expanding its involvement in this area, and as part of the cloud computing option for Microsoft® Office 2010, its Office Web Apps are available to Office volume licensing customers and Office Web App subscriptions through its cloud-based Online Services.

• Platform as a Service (PaaS) — Consumers purchase access to the platforms, enabling them to deploy their own software and applications in the cloud. The operating systems and network access are not managed by the consumer, and there might be constraints as to which applications can be deployed.

• Infrastructure as a Service (IaaS) — Consumers control and manage the systems in terms of the operating systems, applications, storage, and network connectivity, but do not themselves control the cloud infrastructure.

LITERATURE REVIEW

Mell & Grance (2009) explored that many definitions and explanation have been given to the term Cloud Computing from different perspectives. Cloud computing can be defined as "a model for enabling convenient, on-demand network access to share pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction"

Shimba(2010) states that cloud computing provides many benefits include creating economies of scale by waiving the upfront cost for infrastructures acquisition hence leads for cost saving. It allows enterprises to scale down and give more focus to business areas and activities as information system and technology had been taken care of by the cloud vendors.

Kenyon(2012) concluded in his study that SME organizations particularly the benefits of SaaS based public cloud workflow solutions are simply overwhelming. In an increasingly competitive

and challenging market, law firms need to focus on core business activities, which clearly do not include IT. IT should be an enabler for firms to run operations smoothly and in order to help optimize and generate more business.

Armbrust et al., (2009) states that although Cloud Computing providers may run afoul of the obstacles, we believe that overthe long run providers will successfully navigate these challenges and set an example for others to follow, perhaps by successfully exploiting the opportunities that correspond to those obstacles.

Mirzaei (2012) concludes that cloud computing is an emerging computing paradigm that is increasingly popular. Leaders in the industry, such as Microsoft, Google, and IBM, have provided their initiatives in promoting cloud computing. However, the public literature that discusses the research issues in cloud computing are still inadequate. In a study of the research literature surrounding cloud computing, It. was found that there is a distinct focus on the needs of the scientific computing community. Big IT companies are also building their own version of cloud. But still there are many question have left without an answer and indeed the most important one is security.

Dinh, Lee, Niyato and Wang (2013) found in their study that mobile cloud computing is one of the mobile technology trends in the future because it combines the advantages of both MC and CC, thereby providing optimal services for mobile users. That traction will push the revenue of MCC to $5.2 billion. With this importance, this article has provided an overview of MCC in which its definitions, architecture, and advantages have been presented. The applications supported by MCC including m-commerce, m-learning, and mobile healthcare have been discussed which clearly show the applicability of the MCC to a wide range of mobile services. Then, the issues and related approaches for MCC (i.e., from communication and computing sides) have been discussed. Finally, the future research directions have been outlined.

Armbrust, et al., (2009) found that the main benefit of Cloud Computing is that it eliminates the need of upfront investment in hardware. Using the IaaS service model, users of the Cloud can

rent computing resources based on their needs at any time. Instant scaling is a major advantage of Cloud Computing. Even though the concept of renting computing resources is not new, three aspects are new in Cloud Computing. These are a) the illusion of infinite computing resources available on demand b) the elimination of an up-front commitment by Cloud users and c) the ability to pay for use of computing resources on a short term basis as needed.

McAfee, (2011) concludes that a major area where Cloud Computing can be beneficial as opposed to previous paradigms is application development. Before the Cloud, software developers typically had to buy, configure, and maintain their own servers. Those activities are often perceived as a hassle and a distraction from the core work of writing good code. Through the PaaS service model, software developers can get rid of all this hassle and focus their efforts, on the development of software.

Irshad (2017), States that although, the cloud computing service providers had made a huge amount of investment for the development of cloud architecture, the necessary steps must be taken to educate the users in order to fully utilize the technology. As stated in the theory of diffusion of innovation, the advantages of technology can only be experienced if the technology is diffused and used.the respondents use cloud computing mostly in their daily routine at work and home, they agreed that cloud computing services offers lower acquisition and maintenance cost as compared to a normal software.

RESEARCH METHODOLOGY

The research is exploratory in nature and the data used for the analysis is primary in nature. The data was collected using a self structured questionnaire. The questionnaire was designed following a wide review of the literature on cloud computing. The questionnaire consisted of 15 close ended items based on five point Likert scale (Strongly Agree – 5 to Strongly Disagree – 1). Initially a pilot test was conducted on 50 respondents to check the reliability of the questionnaire using the Cronbach's α test. As a general rule a coefficient greater than or equal to 0.7 is considered acceptable and is a good indicator of reliability. The inter item

correlation of all the items were more than 0.196 which is significant and thus all the 15 items were accepted for the final scale. The Cronbach's Alpha for the questionnaire was found to be 0.781(refer table 1). This proves that it is reliable and can be used for further analysis. A total of 350 emails and 250 paper questionnaires offered 114 usable questionnaires for use. The data was then tested for Kaiser-Meyer-Olkin Measure of sampling adequacy and Bartlett's test of sphericity. High value of KMO i.e. 0.735 >.05 indicate that sample is sufficient for factor analysis. The Bartlett's test of sphericity is .000 which is less than .05 indicating that there exists significant relationship among the variable. The data was then subjected to Principal Component Method of Factor Analysis using Varimax Rotation. As a result of factor analysis, three factors were extracted.

RESULT AND DISCUSSION

The factor analysis was carried out on 15 significant items that resulted into three factors that affect people awareness towards cloud computing. The total percent of variance for all the factors was 68.79% and the Eigen value for each factor was more than 1. The details of these factors, with their item loads, eigen values and percent of variances are tabularized and shown in Table 2.The factors extracted are discussed in detail below.

Factor 1 comprises of significant eight items with total load 6.251 and variance 37.545 %.
The first items was Difficulty in concept understanding with item load 0.853, second item was Willingness to understand the features with load 0 .835, Awareness of the technologies going around with load 0 .807, Difficulty in non cloud computing system with load 0.791, Use of cloud computing at work place with load 0.784, Ease of Use of cloud computing solution with load 0.745 whereas Using Cloud computing in other ways with load 0 .743 and Acceptability of use of cloud computing solutions resulted with load 0 .693

Factor 2 emerged with three items : Using traditional computing methods rather than cloud computing with load 0.909, Difficulty in using traditional methods having item load 0.847

Comparing cloud computing with traditional computing with load 0.646. The total load of this factor was 2.402 with total variance 24.407%

Factor 3 significantly loaded with four variables namely : Whether cloud computing helped in work in recent times (load 0.879) , Using Smart phones for cloud computing (load 0 .776) ,Already using cloud computing solutions (load 0.604) ,Using non cloud solutions can be frustrating (load 0 .553). The total load of this factor is 2.812 with 6.837% of variance.

CONCLUSION

It can be concluded from the above interpretation that in central India, people invariably know about the cloud computing technology and are using it in regular basis. This knowledge is limited to individuals only, as in most of the organizations this concept is still to be launched and practiced. As far as awareness is concerned this research has shown that people are aware about the technology and they are using it in other forms (such as saving their important documents in their email account) but they don't know it by the name of cloud computing. Most of the people want this service in their portable handheld devices like smartphones and they would like to know more about this concept if training is provided. Hence it can be concluded that people of central India are using this service and are ready to accept this technology.

REFERENCES

- Armbrust, M., Fox, A., Griffith, R., Joseph , A., Katz, R., Konwinski, A. (2009). *Above theClouds: A Berkeley View of Cloud Computing.*
- Hoang T. Dinh, Chonho Lee, Dusit Niyato and Ping Wang (2013). Wireless Communications and Mobile Computing ,13,(18), 1587–1611.
- M. B. M., Irshad. (2017). The Study on Awareness and Adoption of Cloud Computing by Academics in Sri Lankan Universities. *International Journal of Advanced Research in Computer Science and Software Engineering.* , 7,6-10.

- McAfee, A. (2011). What every CEO needs to know about the Cloud. *Harvard Business Review.*
- Mell, T., & Grance, P. (2009). Draft NIST Working Definition of Cloud Computing. National Institute of Standards and Technology, 53, 50-57). (Retrieved from http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf)
- Michael Armbrust , Armando Fox, (2014). Above the Clouds: A Berkeley View of Cloud Computing. Electrical Engineering and Computer Sciences at University of California at Berkeley.
  (Link: http://www.eecs.berkeley.edu/Pubs/TechRpts/2009/EECS-2009-28.pdf Accessed on 9th Sep 2014)
- Nariman Mirzaei (2008). Cloud Computing.

(Link:http://grids.ucs.indiana.edu/ptliupages/publications/ReportNarimanMirzaeiJan09.pdf)

- Shimba, F. (2010). Cloud Computing : Strategies for Cloud Computing Adoption Cloud Computing : Strategies for Cloud Computing Adoption. Dublin Institute of Technology. (Retrieved from
  http://arrow.dit.ie/cgi/viewcontent.cgi?article=1028andcontext=scschcomdis SME Masterplan 2012-2020, and Summary. (2012). SME Masterplan 2012-2020 (pp. 123–127)).
- Thomas B Winans and John Seely Brown(2014). Cloud computing :A collection of working papers . (Link: http://www.johnhagel.com/cloudperspectives.pdf Accessed on 2nd Sep 2014)
- Tony Kenyon (2014). Cloud Computing. White Paper By
  (Link: http://www.legaltechnology.com/wp-content/uploads/2012/06/OSFT-WSPEC-R004-White-Paper-on-Cloud-Computing-1-071.pdf Accessed on 9th Sep 2014)

ANNEXURE

Table: 1Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.781	.781	15

Table 2 : Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.632	37.545	37.545	5.632	37.545	37.545	4.981	33.207	33.207
2	3.661	24.407	61.953	3.661	24.407	61.953	2.683	17.888	51.096
3	1.026	6.837	68.790	1.026	6.837	68.790	2.654	17.694	68.790
Extraction Method: Principal Component Analysis.									

Table: 3 Rotated Component Matrix

	Component		
	1	2	3
It is difficult to understand the concept of cloud computing.	.853	.035	-.062
I would love to know about the features of cloud computing more as I am still unaware about this technology	.835	-.070	-.063
I am completely aware about the cloud computing technologies going around me.	.807	-.127	.018
I tend to forget the path and file name of a document and it takes me a lot of time to find that file after a while.	.791	.176	-.059
The concept of cloud computing is currently being used at my office or workplace.	.784	-.148	-.128

A perfect cloud computing solution is the ability to create new documents, edit it and save it to the cloud without downloading it.	.745	-.156	-.142
I save my important document as a draft or in the sent item of my e-mail.	.743	-.066	-.102
It would be easier if I can edit the document or create a new document and saving it without downloading it to my computer	.693	-.305	.319
I carry my important documents in portable storage media like Pen Drives all the time.	-.075	.909	.267
I generally struggle with multiple copies of data in my computer disk.	-.073	.847	.281
Cloud computing concept helped me in recent times to save my documents online.	-.113	.646	.546
It would be easier for me if I can view/edit/save a document on my smart phone.	.079	.113	.879
I am using such technology in my smart phone in which I can view/edit/save my document directly on the cloud.	-.143	.328	.776
I am currently using the services of at least one of the cloud computing service provider like Google Drive	-.123	.571	.604
It is frustrating when I have to download my document from the email and then edit it and then again send it to the concern	-.111	.282	.553
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			