Application of Cloud Computing Models in Education

Dr. S. VenkateshKumar[1]; M, Karthick[2]

[1]Head, [2]MCA Student,
[1,2]Department of Computer Applications (PG),
[1,2]Dr. SNS Rajalakshmi College of Arts and Science, Coimbatore, Tamil Nadu, India

ABSTRACT

The cloud computing is a rapidly developing technology, which has brought significant changes and opportunities to various sectors in India. It is a pervasive computing paradigm that has revolutionized how Information Technology infrastructure and services can be delivered. There is a growing interest around the utilization of cloud computing in the education sector. Education plays an essential role in maintaining the economic growth of a country. Now a days the classroom teaching is changing and students are becoming more technology oriented in his changing environment, it's critical that we think about the latest technologies to incorporate in the teaching and learning process. The survey identifies and analyses the advantages and dangers that the use of cloud computing may have for the main stakeholders in education.

KEYWORDS: *Cloud Computing, Software as a service (SaaS), Platform as a service (PaaS), and Infrastructure as a service (IaaS)*

1. INTRODUCTION

Cloud computing is an information technology (IT) paradigm, a model for enabling ubiquitous access to common pools of configurable resources (such as computer networks, servers, storage, applications and Services), which can be rapidly provisioned with minimal management effort, often over the Internet. Cloud computing allows users and enterprises with various computing capabilities to store and process data either in a privately-owned cloud, or on a third-party server posted in a data center - thus making data-accessing mechanisms more efficient and reliable[1]. Cloud computing relies on sharing of resources to achieve coherence and economy of scale, similar to a utility. Advocates note that cloud computing grants companies to avoid or minimize up-front IT infrastructure costs. As well, third-party clouds enable organizations to focus on their core businesses instead of expending resources on computer infrastructure and maintenance. Proponents also claim that cloud computing allows enterprises to get their applications up and running faster, with upgraded accordance and less maintenance, and that it enables IT teams to more rapidly adjust resources to meet fluctuating and unpredictable business demand. Cloud providers typically use a "pay-as-you-go" model. This could lead to unexpectedly high charges if chiefs are not coached with cloud-pricing models. The access of using a network of remote servers hosted on the Internet to store, Manage, and action data, rather than a local server or a personal computer.

PUBLIC CLOUD MODEL

The Public Cloud Model takes systems and services to be easily available to the general public[2]. A public cloud is one placed on the standard cloud computing model, in which a service provider makes resources, such as usage and storage, available to the general public over the Internet.

PRIVATE CLOUD MODEL

The Private Cloud Model accepts systems and services to be accessible within an grouping[3]. Private cloud is characterized by flexibility, flexibility that is achieved by on-demand self-service, ability pooling and a measured service.

HYBRID CLOUD MODEL

The Hybrid Cloud model is a mix of public and private cloud. Non critical activities are acted using public cloud while the analytical actions are acted using private cloud.

CHARACTERISTICS

➢ On request self-administration - A purchaser can singularly arrangement figuring capacities, for example, server time and system stockpiling, as required naturally without requiring human communication with each specialist co-op.
➢ Broad system get to - Abilities are open over the system and accessed through standard instruments that advance use by heterogeneous flimsy or thick customer stages.

- ➢ Resource pooling - The suppliers figuring resources are pooled to serve various buyers utilizing a multi-occupant model, with various physical and virtual resources powerfully alloted and reassigned by shopper request.
- ➢ Rapid versatility - Capacities can be flexibly provisioned and discharged, now and again as needs be, proportional quickly outward and internal equivalent with demand[5]. To the buyer, the capacities material for provisioning regularly give off an impression of being boundless and can be appropriated in any amount whenever.
- ➢ Measured administration - Cloud frameworks as needs be control and streamline asset use by utilizing and metering capacity at some degree of deliberation fitting to the kind of administration.

MAJOR SERVICE PROVIDER
- ➢ Google 101 network
- ➢ Microsoft Azure
- ➢ Amazon's Elastic compute cloud Amazon EC2
- ➢ IBM's Cloud Burst

2. CLOUD COMPUTING IN EDUCATION
One of the biggest tests that the government faces in providing education is the lack of infrastructure and if accessible, then maintenance of that infrastructure and other issues are procuring and maintaining a wide range of hardware and software [4]. A result to all this issue can be cloud computing. It's a set-up of computing resources-located just about anywhere-that can be shared.

ROLE OF CLOUD IN EDUCATION
The administrator, teacher, student or the parent, now have a great time to examine how cloud based application can use students and institute or university.

DATA ANALYSIS AND INTERPRETATION
The data poised for this research were from both primary and secondary sources. The primary expert data were collected using questionnaires, while the secondary source Data ware gathered from academic Journals, publications, the Internet and literature based on cloud computing.

IMPLEMENTING CLOUD COMPUTING IN EDUCATION SYSTEM
To device the Cloud on the education we first build the system to create the cloud and upload the documents, files, images, videos on the cloud. Then we can access it from all over. In schools and colleges, students can prepare their own documents and share it with the others.

BENEFITS
Easy access: Lesson plans, labs, grades, notes, PowerPoint slides – just about anything digital that we use in teaching is quickly uploaded and accessed anytime. Stability: Cloud Computing is now to the point of being a very stable technology that we can rely on.

Reliability: With a handled service platform, cloud computing is much more reliable and consistent.

Manageability: Cloud Computing provides enhanced and simplified management and maintenance capabilities.

PRESENT EDUCATION SYSTEM
Most of the private educational institutions have become highly dependent on message technology to service their requirements. These services are increasingly provided using Internet technologies to faculty and students and accessed from web browsers. The services are offered cheaply or freely to education, often with much higher availability than can be provided by the educational institution[7]. But in most of the government schools and colleges in India IT Plays limited role. Most of the work is done manually form attendance to classroom teaching to examination system.

SECURITY ISSUES

In cloud computing we are saving our important and central data in one place and it will be easy for hack. Conservation of data is a major security issue. Educational organization may consider that their data is more protected if it is hosted within the institution. Transferring data to a third party for hosting in a remote data center, not under the control of the institution and the location of which may not be known presents a risk[6]. Another Security issue is Unsolicited advertising in which aloud providers will target users with unsolicited email or advertising.

SERVICES AVAILABLE TO EDUCATIONAL INSTITUTIONS
Driving cloud laborers have perceived the significance of altering their registering administrations explicitly to the necessities of instructive establishments. The absolute most comprehensively utilized instructive stage is booked underneath:
- ➢ Microsoft Training
- ➢ Google Applications for Training
- ➢ Amazon Web Administrations for Instruction (AWS)

CLOUD COMPUTING IN ELEVATED EDUCATION IN THE THIRD GLOBE COUNTRIES
In most evolving countries, few children graduate from secondary school and many do not even come to an end prime school. In Ghana, for example, only 50 percent of children whole ranking 5, and of those, fewer than half can

understand a simple paragraph. The biggest threat to universal education is quite simply a lack of funding[8]. Many of the teachers in third globe countries are Volunteers. surely, they are great assets and a massive need in third world countries. There are a variety of educational and technical harms in the least residential countries, especially in Sudan that occurred in earlier years, to clarify and highlight:

➢ Weakness of government funding for the education sector
➢ The lack of infrastructure and buildings suitable for higher education
➢ Migrations teaching staff
➢ Lack of educational materials

THE CLOUD COMPUTING TECHNOLOGY (CCT) SERVICE MODELS

Cloud Computing knowledge services are generally regard as falling into three separate categories, Infrastructure as a Service (IaaS)- The IT infrastructures like processing, storage, networks and other fundamental computing resources can be used by the clients as a service, In order to integrate/crumble physical resources IaaS uses Virtualization extensively. Platform as a Service (PaaS)- To develop cloud services and applications PaaS provides an improvement platform supporting the full-Software lifecycle[9]. PaaS requires programming surroundings, tools, configuration management etc.., to support the application hosting environment and Software as a Service (SaaS)- The software usage provide to a customer as a Service. Based on the insist the consumer can choose his software to use.

CLOUD COMPUTING TECHNOLOGY FOR ICT (CCT4ICT) MODEL IN EDUCATIONAL SYSTEM

Most instructive foundations had turned out to be exceptionally reliant on data and correspondence innovation devices to give arrangements and furthermore administration their necessities. These administrations and arrangements are logically incase utilizing Internet providers to both instructing non-showing staff and understudies and got to utilizing internet browsers. The administrations are exhibited are not efficiently or not uninhibitedly to training, regularly with the greater part of these instructive organizations spend a ton on the different assets so as to give quality administrations to their clients. All the primary clients of the organization are associated with the CCT. Separate logins are accommodated every one of the clients for their individual work.

IMPORTANCE OF CCT4ICT MODEL FOR THE TEACHING AND LEARNING OF ICT

➢ Independent Learning style
➢ No extra infrastructure
➢ No more expensive textbooks and Infrastructure
➢ No more outdated learning materials
➢ No more outdated learning materials

➢ No expensive software required
➢ No boundaries to students learning environment

ISSUES IN THE USAGE OF THE CCT4ICT MODEL

CCT difficulties have consistently been there. Organizations and foundations are bit by bit mindful of the business esteem that CCT brings and are making strides towards transformation to the cloud. A smooth change submits a thorough comprehension of the advantages just as difficulties included. Like any new innovation, the appropriation of CCT4ICT model isn't free from issues.

The absolute most significant tests are as per the following.
➢ Security and Protection
➢ Service Conveyance and Charging
➢ Interoperability and Transportability
➢ Reliability and Accessibility

3. CONCLUSION

The evolution of cloud computing as a feasible result for several IT services been the rise for the past years. Experts anticipate cloud computing to go through major adoption in the education sector in the ensuing years, and many IT rulers working in the sector think that on campus cloud programs will be greatly increased in the near future. And when these efforts turn out to be successful, more and more institutions will be willing to move most of their services to the cloud. Though the assistance associated with cloud computing are real, there are issues pertinent to automation and policies that are yet to be resolved in order for the service to attain its ability in full [10]. Large organizations of higher education are expected to invest in cloud services more than ever. Universities and colleges strive to provide a wide range of technology services.

References:
[1] Ishaq, A., & Brohi, M. N. Cloud Computing In Education Sector with Security and Privacy Issue: A Proposed Framework.
[2] Kaur, R., & Singh, S. (2015). Exploring the Benefits of Cloud Computing Paradigm in Education Sector. International Journal of Computer Applications.
[3] Gupta, N., & Thakur, S. The Factors Affecting Adoption of Cloud Computing Technology in Educational Institutions.
[4] Ercan, T (2015), - Effective Use of Cloud Computing In Educational Institutions, Procedia Social And Behavioral Sciences.
[5] Sultan, N. (2015) – Cloud Computing For Education: A New Dawn?,

INTERNATIONAL JOURNAL OF INFORMATION MANAGEMENT
[1] Cloud Computing In Ocean And Atmospheric Sciences By Tiffany C Vance, Nazila Merati, Chaowei Yang, May Yuan.
[2] Gaurav Bhatia, Mohnish Anand, Priya Shrivastava," Cloud Computing Technology In Education System".
[3] White Paper Cloud Computing, Alternative Sourcing Strategy for Business Ict. Published By:T-Systems Enterprise Services.
[4] Wikipedia, "Cloud Computing", Http://En.Wikipedia.Org/Wiki/Cloud Computing, May 2008.S Amazon. S2012. Aws In Education Customer Experiences