



A Rational Approach for Virtual Education System through Cloud Computing

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ABSTRACT

In this globe the developing countries will be survive mired in destitution unless they concerned more on stretching the technology and metamorphosis to everywhere throughout the country including metropolitan to rustic areas. Cloud computing is obviously one of today's most bewitching areas due, at least in part, to its cost efficiency and flexibility. It is a computing archetype where large pools of systems are connected in private and public networks, to provide dynamically ductile infrastructure for data, file storage and application. With the origin of this technology, the cost of computation, application hosting, content storage and delivery is reached significantly. However cloud computing is now pre-eminent for people of every rudiments but due to the deprived economic conditions many countries are impotent to introduce their residents with rich technologies and metamorphosis developed by the computer system. Hence a shared based

system arouse for monotonous distribution of resources between people of every stratum. In this paper we are introducing a framework of Cloud Computing with security for education stratum and scrutinize the footprint of our proposed framework on the availability of ubiquitous resources to all around the country. We are presenting here a relative analysis of our proposed framework with the survive one to bespeak the asset of the proffered framework over the contemporary one. This paper provides brief deliberation on cloud computing aptness which is not yet focused with a synopsis of key features to give a glimpse about the new focused technology. Here, a security is achieved using authentication strategy. We are enhancing the literacy rate thereby providing education through virtual system using cloud computing.

Key Words : Cloud, Security, Authentication, Efficiency, Virtual System, Education, Data Owner.

1. INTRODUCTION

Government of India is promoting the education and encouraging students to join schools, motivating parents to send their ward to schools and thus ensuring that education will helps a person to achieve heights in his carrier and life. Various catchy slogans are given by government and various good schemes like "education to everyone" are started by the government. But all these goes in vain when government not able to provide best facilities to the students. The various schemes makes students reaches to the schools but lack of facilities, good teachers, lack of latest books and labs facilities seriously causes affects on their results and thus discourages them to continue their education. Thus all the thousands of crores of budgets which the government approves every year for education goes in vain and hinders the process of growth of that student and also of the country in a very large extent as all these processes are interrelated. Thus by implementing cloud computing technology we have the hope that we can

overcome all these short comes and maintained a proper centralized system where all the authorities can check the education system from each and every aspects and continue monitor and guide the system. They not only check the needs of

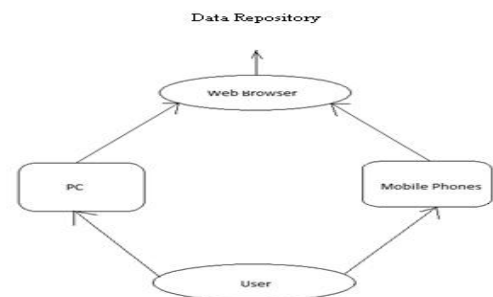


Figure 1: Shows E-Learning Architecture in which how the user communicate using web browser.

the institutions but also ensure that quality education is provided to every student and also his attendance, class performances etc can be effectively maintained.

1.1 What Is Cloud Computing?

Cloud Computing can be defined as providing resources and capabilities of Information Technology (e.g., applications, storages, communication, collaboration, and infrastructure) via services offered by cloud computing providers. Cloud Computing refers to the delivery of computing resources over the Internet. Instead of keeping data on your own hard drive or updating applications for your needs, you use a service over the Internet, at another location, to store your information or use its applications. Doing so may give rise to certain privacy implications. "Cloud Computing" refers to the practice of abstracting resources and services from the underlying IT infrastructure, and providing those services on demand in a multitenant, elastic environment.

Five Key Characteristics:

- a. Rapid elasticity
- b. Ubiquitous network access
- c. Pay per use
- d. On-demand self-service
- e. Location independent data centre

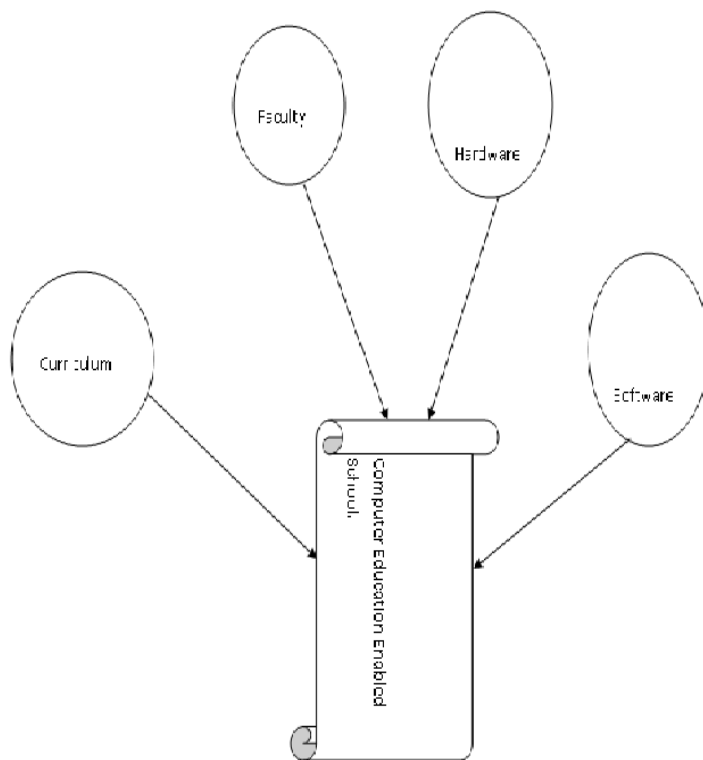


Figure 3 : Shows the Proposed System of Computer Education Enabled School.

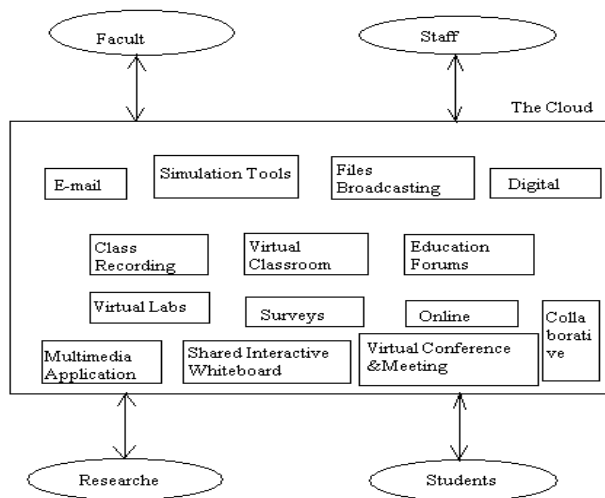


Figure 2 : Shows the Services Provided By an e-learning Cloud.

2. EXISTING FRAMEWORK

The education sector in India is divided into four different segments namely Primary Level (years 1 to 5), Secondary Level (years 6 to 10), Higher Secondary Level (years 11 and 12), Tertiary level. There are a total of 180397 numbers of primary school, 113224 numbers of Secondary school and 3125

institutes at tertiary level. This necessitates different requirements of educational resources (hardware, software, study materials etc) for each of these levels of users. Recently the government is giving maximum priority to human resource development through education and tries to percolate education for all people over the country. Although the government of India allocates maximum budget for the development of its educational arena in the recent decades but still the literacy rate is not increasing commensurately.

2.1 IT IN PRESENT EDUCATION SYSTEM

IT and education system, both the terms are not in any sort of relation in the present day situation. Role of IT is very partial in school level education system. Entire works in school are mostly done in the form of hand written clerical work. We can witness for taking attendance teachers have attendance registers, Fee in most schools are recorded on the fees registers and many other work mostly done in the form of paper work and there is no system to monitor a student at a particular day or particular time thus as a result no monitoring can be done by the government. Also the qualities of teachers on whom we are putting our faith that they will teach our wards at very best are not professional experts and they are adopted as a faculty because they are ready to work at minimum salary. Also the parents cannot see the usual or monthly growth of their wards

and no structure for daily monitoring of attendance of students (in both private and government schools) and teacher (in government schools).

3. PROPOSED FRAMEWORK

The workplace is changing, and the desktop applications that employers use today will evolve to desktop applications combined with web services tomorrow. Educators preparing tomorrow's workforce want to partner with companies that can give them affordable access to those tools today. Our proposed system primarily is composed of cloud partners, local servers and cloud central system. The architecture is depicted. According to our proposed architecture each individual PC is the property of a particular educational institute whereas the institute owned those PCs from the budget sanctioned by the government for that particular institute. There is a local server associated with individual institute who monitors everything ranging from PC status to individual requests for that institute.

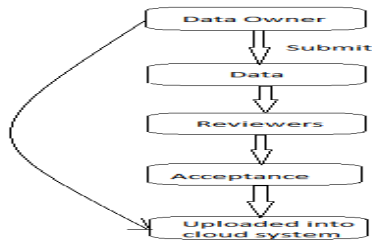


Figure 5 : Shows the data flow in cloud system in which how the data owner stores data into cloud system.

The users associated with a particular local server submit their request to the cloud via the local server. The local server collects the entire request from the clients in its domain within a specific time period and forward those request after verification. In addition there are some providers who have the agreement with the cloud system and offers different services to the user. Here we are providing authentication to both the cloud users and data owners. The Data Owners will have the privilege to create the data as well as they can modify and update their data in the cloud storage. But the users like students will have the privilege to only view the data. By this strategy it is possible to protect our data and also users can benefit by viewing the data to improve their knowledge. Before uploading the data which are submitted by the data owners are reviewed by the experts in that particular. By this we can ensure that we are uploading the data by which the users knowledge can increase in the good manner.

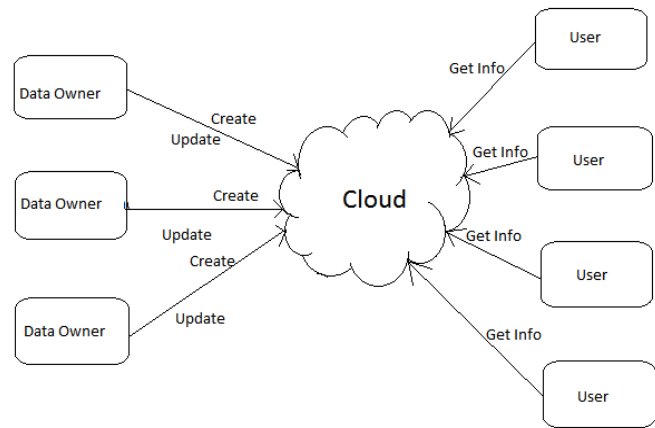


FIGURE 4 : Shows the Interactive structure of proposed architecture demonstrating the creation , updation and interaction between the user and cloud storage.

3.1 SECURITY OF OUR IMPORTANT DATA

With this education cloud we are saving our important and crucial data in one place and it will be easy for hackers to get it at once. One more important point of concern is that we do not have cloud in our country and if we are using other countries cloud then that also a matter of concern. So the best solution for this outsourcing of our data is that CBSE board makes an education cloud for all the school (both state and central boards affiliated) under 1 roof and thus we do not need to send our data outwards to other countries and thus our crucial data will remain safe.

3.2 FEATURES

In our proposed system, we think about implementation of cloud computing in education system from KG level. We can use IaaS from cloud computing to provide service to remote villages. Both public and private institutions can use the cloud to deliver better services, even as they work with fewer resources. By sharing IT services in the cloud, your education institution can noncore services and better concentrate on offering students, teachers, faculty, and staff the essential tools to help them succeed. The concentrated application is for "SPECIAL CHILDS". These category students are mentally abnormal. Nowadays teachers are not performing their job satisfactory even for normal student then there is very less possibility of getting good teachers for such children. But computer doesn't make difference in user in front of it. We can use specially prepared software for teach such a student grown up and build their confidence.

3.3 THE BENEFITS OF CLOUD COMPUTING IN EDUCATION

NO MORE CARRYING AROUND DEVICES, such as thumb drives or CDs. You don't need to worry about losing the device, breaking the CD, or not having your information load properly.

EASY ACCESS! Lesson plans, labs, grades, notes, PowerPoint slides – just about anything digital that you use in teaching is easily uploaded and accessed anytime.

STABILITY: cloud computing is now to the point of being a very stable technology that you can rely on.

SECURITY: Your data, content, information, images – anything you store in the cloud usually requires authentication (ID and password, for example) – so it is not easily accessible by anyone. In addition, should something happen to the technology at school, your content will still be available to you and your students if it is stored elsewhere.

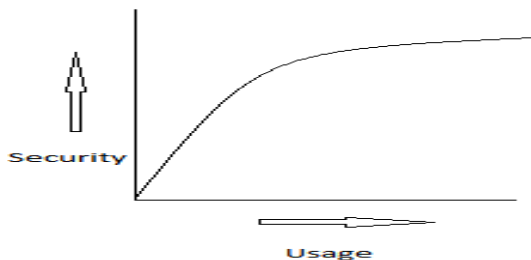


FIGURE 6 : Shows the Performance Measure Graph which Demonstrates the Parallel Growth of Security and Cloud Usage.

SCALABILITY: Working on an instructional assignment with other teachers? You can share some or all of your files that you have stored in the cloud. No more obtaining an extra thumb drive or burning another CD or DVD. You just need to send a link to the file(s) destination.

TRACEABILITY: Make changes to a lesson and want to change it back? No problem. Cloud computing will save multiple revisions and versions of a document so that you can chronologically trace back the evolution of an item.

COLLABORATION: You can set-up various student groups to work on projects and assignments in the cloud.

GOOD-BYE COPIER! That's right! With cloud computing, the amount of photocopying is reduced significantly – even more so if each student has their own smart device (computer, laptop, tablet, etc.). Quizzes, tests, assignments all can be taken, scored, shared with student and parents, and stored.

GOOD-BYE FILE CABINETS! With cloud computing redundancy, there is no longer the need to both save files digitally as well as in paper format. Cloud computing systems are regularly backed-up, so the chances of losing content are quite small. And, no more file cabinets means more classroom space for you and your students!

4. CONCLUSION

Cloud computing oath incomparable things to incomparable players in the IT. The key rationale of this paper was to give a glimpse of understanding on cloud computing as a scientific knowledge for a new era. Its prospective is considered so mammoth that it is surely going to give up a pristine facet for the generation to come. The predominant intention of our proposed frame work is to use our slender deep pockets in a most methodical way. Several large universities have also been strenuous with large scale cloud computing research projects. There is no culmination to the evolution until one stops thinking. It is important to realize that the complete shift to the cloud is not near, but enterprises will be better off with a long term prescience for technology, people, information, legitimacy and collateral to sway capabilities offered by cloud computing. We can anticipate and trance that cloud computing will be the unsurpassed choice for computing for the few decennium to come.

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