A Freewill and Automated Information Housed Infrastructure of Cloud for E-Learning

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Abstract- The one of the most widely used and a prominent service on the internet is World Wide Web. It provides wide connectivity and promising features, that makes one being ease of access, and it has been treated as a common place of information. The Cloud services can be accessed only with the help of Internet. E-Learning System is one which allows the learner to learn the things according to his area of interest. And can be thought as the wonderful resource for learning regardless of the location. Main aim behind this E-learning system is to provide a user friendly environment, in which user is free to learn anything which he wants. Only the registered learners can make use of the features provided by the system, after the registered people chooses their interested subject/topic and go for starter test. This starter tests helps to establish incremental learning process depending upon his subject knowledge. In brief, e-Learning System gives connectivity throughout the world to the massive knowledge.

Keywords- *Flexible Learning, E-learning system, Cloud computing, Text-based,Web-based learning*

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I. INTRODUCTION

Education or Learning is a very important component of life and No human beings are able to survive properly without the education. Now a days, there are lots of paradigms being developed for getting knowledge or learn anything. In that one of the most promising paradigms is e-learning. E-learning is commonly or mostly referred to as an intentional use of information and networked communications technology in teaching and learning. It can also be called as a type of online learning, virtual learning, distributed, network and web-based learning [2]. E-learning system includes all forms of electronically supported teaching and learning methods. Here both information system and communication systems, serve as specific media to implement the learning process for the learner. And this often involves regardless of the location via technology, even as advances continue in regard to the devices. (Computer-Based Training) CBT, (Internet-Based Training) IBT or (Web-Based Training) WBT have been used as synonyms to the e- learning [1].

II. CLOUD COMPUTING

Cloud computing is a type of computing system in which various hardware, software and applications are made to share their facilities over the internet. In general cloud computing is a technology based on virtual technology. It is a technology in which the internet is used to perform many tasks using virtual techniques. So Cloud computing is the technology which can be used only through internet. It provides a strong mechanism for retrieving of any kind of information by the advance computing and the virtual technology with the use of information technology [1][2]4]. Cloud computing can be considered as central remote server to update the information and maintain data records of the updated information [2]. It gives the all rights for storing and process of the centralized data. For the effective use of cloud computing, we require internet connection by the cost effective service of computing so far. Cloud computing technologies can be enabled in those institutions that do not have the technical expertise to support their own infrastructure and to get access to computing on demand. Cloud computing makes it possible for anyone to deploy tools that can scale on demand to serve as many users as desired. Service providers greatly simplified the software installation and maintenance and centralized control over versioning; consumers can access the service regardless time, regardless of location, sharing data and collaborate more easily, and provide the security to the data stored in the infrastructure. To the end user, the cloud is invisible and the technology that supports the applications doesn't matter [8]. For many institutions, cloud computing offers the cost-effective solution to the problem that, how to store the data, and computing power if the Internet users are growing, by without investing capital in physical machines that need to be maintained and upgraded on-site.

A. Cloud Service Models

i. SaaS (Software as a Service): The capability of a cloud provided to the user is to use applications running on a cloud

infrastructure provided by the provider's. The applications are then made accessible from various client devices through a interface known as client interface is called as a web browser.

ii. PaaS (Platform as a Service): The capability of a cloud provided to the user is to insert data onto the infrastructure of the cloud and these user-created or acquired applications created using programming languages and tools supported by the cloud provider.

iii. Iaas (Infrastructure as a Service): The capability provided to the user is to provision the storage, networks, processing, and other fundamental computing resources so that the user is able to deploy and run arbitrary software, which may include operating systems and applications.

B. Cloud Deployment Models

i. Public Cloud: In this type of cloud, the Cloud infrastructure is made available to be used by the general public or a large industry groups and is owned by any organization selling cloud services. Pay per use model is applied here, which means that the public cloud user should pay for the usage of the cloud.

ii. Private Cloud: In this type of cloud, cloud infrastructure is operated or used solely for a single organization. It may be managed by a third party or organization. And hence the cloud is private to that particular organization.

iii. Hybrid Cloud: The cloud infrastructure is a combination or composition of two or more clouds such as private-community, or public-private and this remain distinguished to the entities but are bound together by standardized or proprietary technology that enables data and application portability [3]. Figure 1: refers to the cloud deployment models.

III. E-LEARNING SYSTEM

The e-Learning System concept is not new to the world. Already there several learning systems are being implemented and successfully used. E-Learning System is a web based learning system that helps the students by allowing him to take the learning in step by step, by providing the all the available information on the subjects [4]. It is an online course in which it helps the student with verity of online resources to help students to completely understand concepts and prepare for their interested subjects.

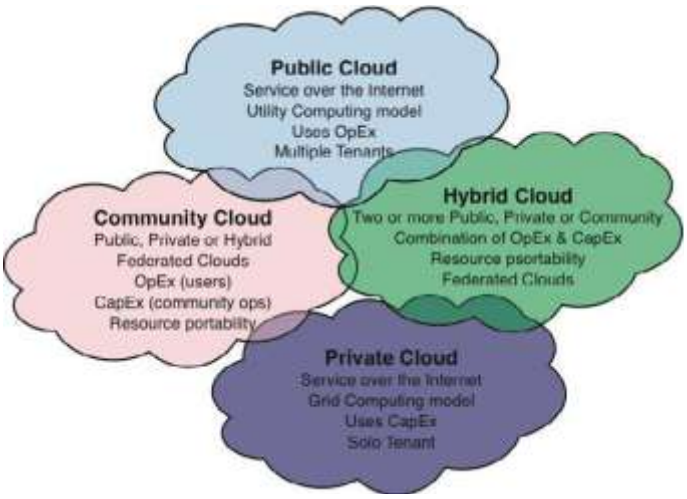

Figure 1: Cloud Model

Essentially, this e-Learning system can be called as a realization of the concept of flexible learning, by giving the user time, learning resources and preference to learn at his own interest and, regardless of his location [1].

E-learning systems can use benefit from cloud computing using:

i. Infrastructure: can make use provider's infrastructure for e-learning solution like storage.

ii. Platform: can make use the provider's development interface and develop an e-learning solution.

iii. Services: can make use of the services given by the provider for e-learning solution.

IV. STEPS INVOLVED IN THE PROPOSED E-LEARNING SYSTEM AND ITS ARCHITECTURE

The motivating factor here is to provide the students with an environment where he can do flexible learning, making use of Internet and intranet. This can be called as an Internet Based Learning system; this can be used in any colleges/institutions [6].

A. Login and Registration: In this, if the user is new to the system, then he should first get register with the system by providing his necessary details. Along with providing his details, he also specifies the service format like whether he wants the service in text format or video or image. If he is already registered with the system, then he can directly login to the system by providing desired username and password. There the user can select the available subjects in which he is interested to further learn about.

B. Starter Tests: Once a user selects a subject, he will be undergone to take a starter test, which helps the user to

estimate his knowledge about that subject till then. Based upon his results rating of this test, the user can proceed for the learning as desired based on his performance rating.

C. Tutorials: After the starter test the user can then take lessons, which are partitioned into sessions for each subject or a topic. Each session will be scheduled by the administrator is made available to the student. The materials which are available from the system can be downloaded by the learners. If in case the student does not get satisfied with the study material provided, then he can access the information from the real-time data sources like Google docs, iGoogle and Gadgets etc.

D. Online Examinations: after finishing the session the user can go for online examinations with the respective of the subject chosen from the system. These exams are usually planned by the system administrator.

E. Discussion Forum: A student can attend the discussion forum which is available for the students to discuss their doubts and exchange ideas of each every one according to their subject/topic of interest. The student can start a question or topic of discussion, which can be called as thread for discussion in the forum.

F. Administrator Maintenance: It is the responsibility of every administrator to maintain the databases and has the right to block a user account. Administrator also maintains the database of question that is used for providing the online examinations. He can schedule the sessions for the users, plan when to give the exams to the user and also can create and maintain all the things related to the system.

Figure.1 shows the proposed system architecture. Once the user is registered for the particular E-Learning course, the learner will go under the above steps, first he will take the starter test, and depending upon his performance rating he will be allotted to the session to which he belongs. The user can also requested study material of his own interest from the information source such as Google Docs, iGoogle and Gadgets [7]. The retrieving of study material or information from the data source is done by advanced data-mining algorithm. And the retrieved information is stored in the clouds IaaS (Infrastructure as a service layer). And that stored information is given for the future learners who request for the particular study material. In the proposed system Services are provided based on user interest formats like text based. Once the data is retrieved from the back end data sources it can be saved in the infrastructure of the cloud and served to future users. It is expected that if the request for the same information done, then the proposed system will give the faster response to the second user than that of the first user.

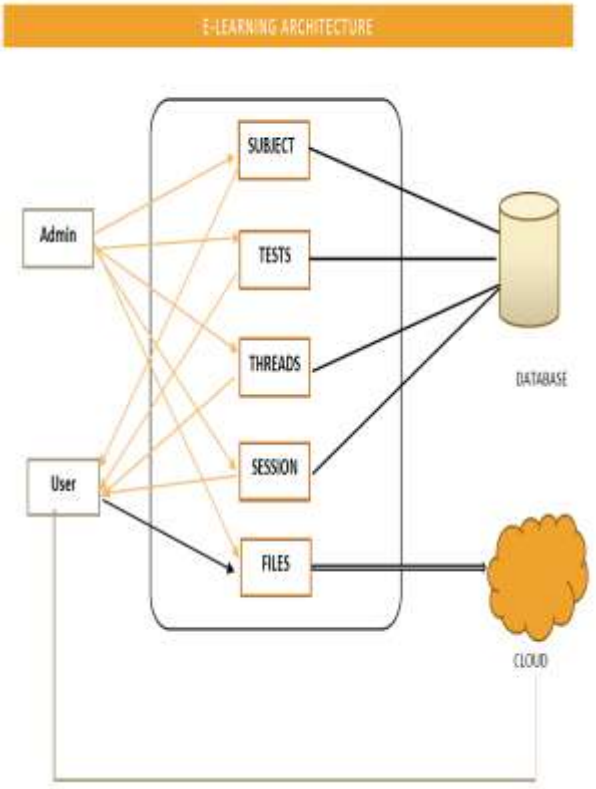

Figure 2 : The architecture of the proposed system

V. CONCLUSION AND FUTURE ENHANCEMENTS

The main aim of the proposed system is to provide a user with a user friendly environment, in which the user can learn the things according to his own interest. And the proposed system supports for the text based learning format. The user can surf the information for his interest. Also provides the user that, the retrieved information is stored in the cloud and can serve the future user with faster response than first user.

The proposed system can be further improved for supporting of videos and images. And can be worked to improve system performance and providing user with better services.

REFERENCES

[1] E-Learning using Cloud Computing. Utpal Jyoti Bora, Majidul Ahemed.
[2] Cloud E-Learning Application: Architecture and Framework. Gagandeep Kaur1, Dr.Sonal Chawla2 1(Research Scholar DCSA PU Chandigarh, India) 2(Associate Professor DCSA PU Chandigarh, India).
[3] E-learning using Cloud Computing. Gunjan C. Bhure and Sneha M. Bansod. Computer Applications Department, Kavikulguru Institute of Technology & Science, Ramtek, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.

[4] E-Learning on the Cloud. Mohammed Al-Zoube Princess Sumaya University for Technology, Jordan.
[5] Alexander, B., "Web 2.0 a new wave of innovation for teaching and learning," Retrieved from http://www.educause.edu/ir/library/pdf/ERM0621.pdf .
[6] Cloud Computing System for E-Learning: A Design and Development Approach Prof.Vaishnavi.J.Deshmukh, Prof.Sapna.S.Kaushik, Prof.Amit.M.Tayade.
[7] iGoogle and gadgets as a platform for integrating institutional and external services. Oskar casquero, Javier Portillio, Ramon Ovelar, Jesus Room,Manuel Benito.
[8] Architecture Solutions to E-Learning Systems Using Service-Oriented Cloud Computing Reference Architecture. K. Palanivel, S. Kuppuswami