

An Effective tool for Cloud based E-learning Architecture

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Abstract-Cloud computing acts as popular technique for in the computing service delivery. It is limits only stage of developing computing service and it made many revisions on the method of developing and accessing it. It depends on many existing technologies, such as web 2.0, virtualization, since oriented Architecture (SOA), web service etc. Cloud computing has a remarkable application in the educational institutes and universities since it provided the internet services on a flexible infrastructure-learning have become very popular because of its inevitable applications. In the traditional web based systems when they are located onsite which causes lot of problems to appear, such as lacking the support of underlying infrastructures, which can dynamically allocate the needed calculation and storage resources for e-learning system. But nowadays web 2.0 and cloud etc., is more successful in enlacing to give collaborative and interactive e-learning environments. The original challenge lives in interacting those technologies to construct letter learning remits. The emerging technologies that are to be concentrated for developing and deploying the usage of E-Learning applications are cloud computing and web 2.0. In the paper are presenting the advantages of integrating web 2.0 collaboration techniques and cloud computing in the E-Learning field. We provide an interactive tool that can be used for science education. Integration between cloud computing as a platform and web 2.0 are presented as a solution for building effective E-Learning system.

Key words: Cloud computing, E-learning, web2.0.

I.INTRODUCTION

During the last years, the nature of internet was constantly changing from static environment to a highly dynamic environment that allows end users to run software applications collaboration share inform and creates new services online [1]. The further is going to the occupied by the cloud computing this new environment provides the support for creating the upcoming generation of e-learning occur system. Which is capable of running on a wide range of hardware devices, when the data is stored inside the cloud the rapid development of internet and information technology made the innovation for various kinds of technology possible, the nature of the web and the way, the users accessing web resources for personal, education, business, employment, entertainment, health care and other social purpose have changed. Within the last 15yrs, the internet nature was constantly changing from static

environment web 1.0 to a highly dynamic media and collaborative and web 2.0 that allows end used to run software applications collaborate share inform, and creates new service online [1] The term cloud computing is the hot topic emerged recently.

There is an emerging need for E-Learning and so then should a constant development and improvement in the E-Learning is one of the best and most important technologies which help the universities and the institutions to create a good learning environment. E-Learning is a term used to describe any form of electrically based learning and teaching including computer based loading both in and outside of the class room such as sharing of the university lectures on an intuition's website [5].

In developing nation like India it is very vital to implement the E-Learning software solution to improve their educational standards. Due to improper facilities and the lack of infrastructure there lie many problems in their part of implementation in much educational institution. The cloud with E-Learning is the last alternate to this lack and it fulfills the need.

II. CLOUD COMPUTING

The term cloud computing came into existence in the late of 2007. In is model application and documents are transferred from the traditional desktop platform to interact platform to the cloud [4], users then can access and share their data and applications easily from a remote "Cloud" on demand and according to their convenience, they will be changed only based on their consumption. Today people are using cloud services and storage to create, share organize information from many different types, and not only from their computer, but also for any device that is connected to internet such as mobile phones, I pod or portable music player. In the modern era cloud computing is acting as an essential technology that accelerates the innovation for the computer industry. It is a computing model based on network especially based on the internet whose task is to ensure that used can simply use the computing resources on demand and pay many according to their usage by a meeting pattern similar to water and electricity consumption. Therefore all things to be new business model, where the service it provides is learning computing resource [12]

Cloud computer is highly scalable and create virtualized resources that can be made available to users. User does not require any special knowledge about the concept of cloud computing to connect their computers to the server where application have been installed and are them. User can communicate through internet with remote server. This server can exchange their computing slots themselves [13]. Cloud computing is one of the new technologies that likely to have a significant impact on the teaching and learning. In cloud computing there are two types of clouds. One is public cloud in which the resources are externally owned and the other is private in which it is internally owned. Public clouds are those which often service to the access in them the enterprise, in which the user can utilize without any charge.

2.1. Definition

There are version definition available in both academic and business for the cloud computing. But till now there are no commonly accepted definition reached. This has risen based on the following reasons.

1. It is a computing field in which the engineer and researcher work from different background with different perspectives. Ex. Grid Computing, Software Engineering and Database.
2. The supporting technology set as web 2.00 and service oriented computing are still in a growing and developing era.
3. Cloud computing is not deployed on a large scale till now.

Irrespective of these issues, there are common key elements used in the cloud computing community, these common key were provided by U.S NIST (National Institute of Standards and Technology) [6] which includes cloud architectures, security and deployment strategies.

III. CLOUD BASED E-LEARNING

Cloud computing can also be called as on demand computing based on its service or internet as platform is currently one of the new technology trends will induce a major impact on teaching and learning environment in coming days. It is also facilitated to have E-Learning possible for mobile phones and other devices such as Tablet, Smart Phone etc., through application of cloud.

The cloud computing is more advantageous when applied in collaboration with E-Learning this brings improvement in the performance of pc's, lowers the maintenance costs, reduces the hardware requirements for user, It infrastructure cost are lowered, lower software cost, increased computing power, improved compatibility between operating system, increased data security, easily accessible from a range of devices, portability of document and easier group collaboration. From the limitation print for view of cloud computing it is important to have an internet connection and if it is a low speed connection it also limits the accessibility and security.

Advantage of E-Learning in Cloud / (Cloud based E-Learning)

The application of cloud based e-learning is as follows [8] [5].

- Grants opportunity for ubiquitous computing
- It is not necessary to have a copy on secondary storage devices.
- It is possible for the students to create a repository of information that stays with them and keeps growing as long as the student / facts need it.
- Most of the Software is free and open source.
- Learning can be extended even after class hours.
- It provides a low cost solution to academic instructions for their resources facility students.
- Flexibility is available to maximize the investments. It allows user to dynamically scale according to the demands.

IV. RELATED WORK

There are certain various achievement and implementations on this field. A brief analysis of this system in presented. Several modern cloud computing based E-Learning applications, that can use IaaS for dynamic assignable storage and compute resources were proposed by [1]. They describe a general and simple architecture with monitoring, Policy and provision modules [1].

Cloud computing enables physical machine to be virtualized and allocated on demand for E-Learning system. The blue sky framework is focused on delivering IaaS and has some architecture layer dealing with physical resources, provisioning, monitoring and user interface but no security layer for user access policies.

Snow Leopard Cloud [2] provides PaaS for North Atlantic Treaty Organization (NATO) to run its various military exercises and mission events. In addition Snow leopard is used to run web 2.0 applications such as video conferencing, voice over IP, and remote management, over hand held devices and terminals. As Snow Leopard cloud is targeted towards military usage, it has a multilevel security and the network infrastructure is encrypted.

V. PROPOSED FRAMEWORK OF CLOUD BASED E-LEARNING

In this section the frame work of cloud based E-learning is described. This is built on the basis of integrating cloud computing and web 2.0 due to the advance in internet technology, in modern days use collaboratively use those two technologies for e-learning application. The proposed framework is based on the virtualization technique. The framework consists of three main layers. Cloud model layer, Service model layer, Application model layer
Cloud Model Layer

As we have already discussed this exists two types of clouds as such private cloud and public cloud and one more cloud is also to be discussed which is a combination of these two (i.e.) hybrid cloud. These facilitate the students / teachers to access their resource in a flexible manner.

Public Cloud

The clouds that are created and owned by the third parties are called public cloud (i.e) cloud service providers. The merit of using them are they provide more scalability which they provide more scalability which solves the scalability issues whenever a demand is arisen. It has its own application where a large investment is not need to set up an individual one and it is mainly used for educational and research purpose. Example of item is S3 (Amazon web services and EC2)

Private Cloud

It is mere the opposite of the public cloud and where it enables educational institutions to have complete control of service, data security, applications and resources that are provided to their users. Nowadays there is large number of private cloud based instruction and organization is established.

Hybrid Cloud

It is combination of both the clouds which institution provides and manages some resources in one house and extremely uses the applications of the house. For e.g. Amazon can be used by an organization for archiving data but continue to maintain in house storage for opening consumer data.

B.Service Model Layer

It includes the Services provided by the cloud like software as a service (SaaS), Platform as a service (PaaS) and Infrastructure as a service (IaaS), software as a service is otherwise called as on demand software. Since it provides application, collaborations, business process and student information [10].

PaaS provide runtime, middleware data bases. There are various types of PaaS vendors which often application hosting and a deployment environment along with various integrated service. The service offered is scalability and maintenance.

IaaS provide operating systems, server, virtualization storage and networking. Infrastructure is the ground work of cloud computing.

C. Application Model Layer

This is the important layer which includes various modules for content creation, content delivery, admin, student mgt, assignment.

Advantages of the Proposed Framework

- It provides powerful computing and extended storage capacity.
- Due to the integration of man storage and high performance computing power, this system can provide a higher quality of service. It is used for the automatic detection of node failure and excludes the node which affects the normal operation of the system.
- Due to the high security offered by the cloud computing model, this provides the users to provide security to the greatest possible degree.
- The learning and the technique will be more interactive which is and the demand of the age.

VI.CONCLUSION

The field of cloud computing has recently been emerged as computing paradigm for managing and delivering service over the internet. Performance of this cloud based E-Learning can then be evaluated with respect to internet based E-Learning application. The future scope of this will be oriented towards designing and improving the performance of application.

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