Cloud Computing in Education Sector

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Abstract- **Education is highly important in today's society. It helps to stimulate the minds and shape it into academics. Many Academic Institutes exploring are new technology for effective teaching and learning Methodology. One of the emerging technologies Cloud Computing can be very useful in the teaching-learning process. As Cloud provides a variety of services, an institute can offer quality education by implementing the latest infrastructure in terms of hardware and software. This paper concentrates on the basic introduction of Cloud Computing and how cloud computing can be introduced in education to promote education and training methodology which can bring a change in the field of learning.**

Index Terms- Cloud, Education, Information, Infrastructure, Services.

I. INTRODUCTION

During last two decades, the following evolution of distributed computing has changed the working of scientific and commercial applications. This progress has evolved several newer applications. The latest growth of shared computing is Cloud computing. Pure form, Cloud computing means saving and reaching data and programs over the Internet instead of computer's hard drive. In other words, cloud computing provides shared resources, software, and information through the Internet as a PAYGO (Pay-as-you-go) basis.

Cloud computing can be a greeted optioned in the universities and educational institutes for studies. It gives a better choice and flexibility to the IT departments by building multipurpose computational infrastructure once and then uses it for several purposes several times.

Teaching is now not just limited to the classroom with students. Today Education is massively addicted to Information technology. The rate of IT technology is changing and which places the more extra economic trouble on the institute. Continuous the upgrading hardware and software is difficult and also it leads high cost to maintain them. Cloud Computing provides the solution to this problem. With the help of cloud computing the user uses the principles and application on-campus or off-campus or a combination of both depending on the companies need.

II. CLOUD COMPUTING

The availability of high-capacity networks, low-cost computers and storage devices as well as the general variety of hardware virtualization, service-oriented architecture, and autonomic and utility computing has led to growth in cloud computing. The availability of high-capacity networks, low-cost computers and storage devices as well as the widespread adoption of hardware, service-oriented architecture, and autonomic and utility computing has driven to growth in cloud computing. Cloud computing is already used broadly in education. Free or low- cost cloud-based services are used every day by scholars and professors to support learning, social cooperation, content creation, publishing, and collaboration.

Some influential examples of cloud computing services include Google Drive, Amazon Cloud Drive, Apple iCloud, Microsoft's SkyDrive, Humyo, ZumoDrive.

Software as a Service (SaaS)
These types of application are generally intended for end-users, delivered over the web. SaaS works so much better for students because it provides access to forms anytime, anyplace, for any type of devices like laptop, smartphone, tablet, or other web-enabled devices. Adding more users or computing the software to more classrooms or universities is becomes a very easy task with SaaS. As an example, a college can scale its SaaS solution from 50 students to 5,000 in an element of hours – impossible in the current IT scenario.

Platform as a Service (PaaS):

PaaS is the combination of development tools and services which is used for coding and expanding the applications fast and effective. With PaaS, Students, teachers or other academicians can develop new applications or services in the cloud which is platform free, and also make them widely available to users within the Internet. It also grants assistance for testing, deploying, co-operating on, hosting, and maintaining applications.

Infrastructure as a Service (IaaS):
IaaS is the aggregate of hardware and software that powers it all – servers, storage, networks, operating systems. These are also known as On-demand data stations which provide estimate strength, memory, and storage, typically priced per hour according to resource consumption. It can be used to satisfy the infrastructure needs of learners, faculty or any other academia's.

III. WHAT IS CLOUD STORAGE

Cloud storage is way for a businesses and consumers to save data securely online so it can be accessed anytime from any location and easily shared with those who are granted permission. Cloud storage also offers a way to back up dfacilitate to data recovery.

IV. HOW CLOUD STORAGE WORKS

Cloud storage works by client computer, tablet or smartphone to send and retrieve files online to and from a remote data to server.. A cloud storage system can specialize in storing a particular type of data such as digital photos or can provide for general storage of many types of data such audio files, text documents and spread sheets.

V. CLOUD STORAGE SECURITY

There is so much attention on cloud storage today in the digital area because so much of our sensitive personal data is stored in the cloud whether we voluntarily store whether a business we do company with decides to store it there. cloud security is a major concern.
Wonder users whether their information and increasing data breaches have While cloud storage vulnerable may be due the prevalence of hacking, the alternatives, such as onsite storage, have security vulnerabilities, too. Company-provided cloud storage can actually security by giving employees an alternative to using their personal accounts to back up and transfer files that they need to access outside the office.
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Figure 3 - Cloud Customer Risk Categories and Subcategories [Latif14]
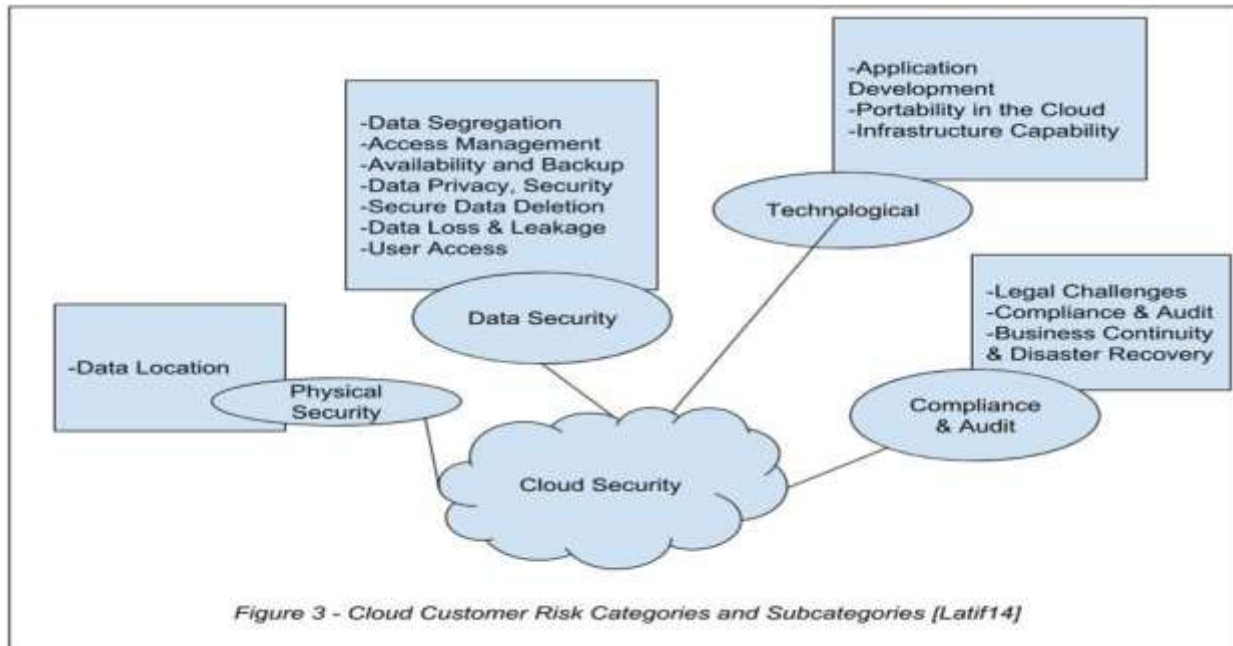
VI. CURRENT SCENARIO OF EDUCATION

The education system is always based on the marks, grades and figures. But in real life, solid data, studious thought, and some work are required to remain in the contest. Moreover, practical knowledge has great significance to be in competition nowadays for this reason to allow the practical knowledge Institute has to build latest configured Laboratory which acquired the highest cost in hardware shape and due to technological obsolescence it will become a recurring cost for the institute. Hence there is a need to find out the possible solution and the solution is Cloud Computing services. To overcome from such type of problem the Institute can accept a service from any cloud service provider on the bases of pay as you go. Another factor is that Institutes are gradually depended upon content administration system according to that Institute can also pick a service to store the content on the cloud and any learner or team or any academia's can use that from anywhere and anytime and on any project.
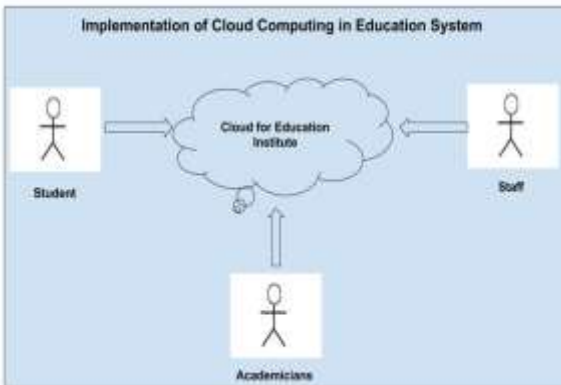
VII. IMPLEMENTATION OF CLOUD COMPUTING IN EDUCATION SECTOR

The dormant users of Education cloud are learners, faculty or academicians. Each user has their own credentials to access the corresponding cloud services. Choosing SAAS of Education cloud, teaching staff can maintain the attendance, conduct online quiz and many more with the particular software combinations. Choosing PAAS Institute can build effective sessions as and when needed from Education Cloud. For e.g., developing devices like mobile apps, web apps, etc. Choosing IAAS Staff can upload their study materials or any similar content on

Education cloud and scholar can access these elements and content 24*7*365.

VIII. BENEFITS OF CLOUD COMPUTING FOR INSTITUTIONS AND STUDENTS

With the growth of educational cloud, new web applications such as Lecture Tools, Slide share etc allows the speaker to get their task done in their web browsers preferably storing and displaying it on the hard drive. It gives the benefits such as - Access the files from everywhere - Stop bothering about extra software permissions - Share content more easily - Get something done without software troubles - Guide for teaching and learning - Software free or PAYGO - 24 X 7 access to infrastructure and content - Protection of location by using green technologies - Improved presentation of new IT technologies to students - Decreased the cost to update infrastructure. Cloud computing has the potential for advancing the efficiency, cost, and support for the colleges and educational sectors, but it has few limitations such as; - Not all application run on cloud - Opportunity related to data security and protection and its sincerity - Organizational support - Distribution governments, intelligent property - Activity and need of Internet can modify operation systems..

IX. CLOUD COMPUTING ADVANTAGES

1. Less Costs
The services from capital expenditure. There are no huge costs cloud computing. You just the have to pay as you operate it and enjoy the model based on your subscription plan.
2. 24 X 7 Availability
Most of the cloud provides are truly reliable in offering their services, with most maintaining an

uptime of 99.9%. The worker can get onto the applications needed basically from anywhere

3. Flexibility in Capacity

It offers facility which could be turned off, up or down as per the circumstances flexible of the user. a promotion of sales is very popular, capacity can be immediately quickly and added to it for the avoidance of losing sales and crashing servers.

4. All over Functioning

Cloud computing another advantage of working from anywhere across the globe, as long as you have an internet connection.

X. CLOUD COMPUTING DISADVANTAGES

Security issues – Though advanced security measures are deployed on cloud, still storing a confidential data in cloud can be a risky affair.

At time of the storing data cloud may serious challenge of information the front of the company.

Low bandwidth – At times the bandwidth low as many users are which causes its bandwidth to go down. Accessing cloud at the.

Flexibility issues – The cloud services run remote servers which make it hard for the companies to have control over software and hardware.

XI. CONCLUSION

Cloud computing is an arising technology in the coming years which provides a range of advantages to students, staff, and academicians. Despite these constraints, cloud computing offers security services to student and staff so that teaching-learning methodology becomes effective and qualitative. Besides this by obtaining cloud services from Education cloud Institute can reduce their expense in managing their laboratory.

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