

Cloud Based Learning

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Abstract - Now Cloud is expanding its world at a tremendous rate whether it is in field of healthcare, telecommunications, or education. Everywhere cloud is benefiting the technology and the people. One of the key areas where large repository of resources is very much needed is education. E- Learning has come up with a new addition i.e. Cloud based Learning. This paper reviews about the education cloud, its layers and compares it with the traditional learning methodologies. Different cloud based learning management systems are also reviewed.

Index Terms- Cloud based Learning, E-Learning, Education Cloud, IT Learning

1 INTRODUCTION

Technology world is becoming digital day by day, whether it is business or education. In education, learning has also found several new techniques. One of them is e-learning. E-learning LMS (Learning Management System) are content-centric and unadoptable to specific users needs. Thus E-Learning has been innovated in Cloud based learning. A Learning system which will be created, shared, enhanced by the users for the users.

This paper focus on the concept of cloud based learning. The first section covers the introduction of cloud based learning and its need. Second section describes the education cloud. The third section gives the benefits of Cloud based learning and features of modern LMS available in the market.

2 NEED OF CLOUD BASED LEARNING

Today, Flipped Classrooms have come into concept, where students watch online lectures, discuss in online platforms and carry out their work at home with the guidance of the instructor. Broadband access, CPU speed and graphics processing, multi-media production in terms of sound, image and film, and other innovations have placed significant demands on the technology industry. And Cloud learning fulfill the demands by giving good response time. The major problem with distance learning is less involvement of learners in the actual process. Face to face interaction is also missing, which is the biggest challenge in learning. Cloud helps here by providing them virtual visualization of the procedures or the actions which are to be done. Newer technologies are putting forward cloud interactive learning by video conferencing to keep them connected.

E-learning requires sufficient hardware and software to provide e-learning. Cloud offers learning in limited budget with SaaS (Software-as-a-Service) and IaaS (Infrastructure-as-a-Service). SaaS provide software's as platforms while IaaS provide them sufficient resources for running them. This type of environment provides a better and efficient manner of learning which can be availed everywhere.

Another way to drive engagement with the subject matter is to use interactive resources such as a class website, or mo-

bile apps. With the actual material stored in the cloud, it's easier to connect the users together into a single, cloud-based classroom.

Cloud computing provide large number of options to be adopted for managing cost, easy learning and security of the resources. It has improved the approach of learning in comparison to traditional learning. LMS products are sold commercially as a locally hosted enterprise product or a Software-as-a-Service (SaaS) offering. The former is hosted on an organization's own servers. The latter is hosted on the vendor's site and they can be accessed from anywhere because the data is stored "in the cloud".

There are many different types of learning modalities each with its advantages and disadvantages. Figure 1 provides comparison among the main learning methods across several key features.

Approaches/ Features	Cloud-based learning	Class-room- based learning	Virtual-class- room learning	Internally developed e-learning
Cost-efficient	√		√	
Portable	√			√
Low carbon footprint	√		√	√
Curated	√	√	√	√
Variety of learning model- ities	√			
Embedded into daily workflow	√			√
Enterprise- scalable	√			
Quickly de- ployed	√			
Aligned to business objec- tives	√	√	√	√

Automatically maintained	√			
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Fig.1 Comparison of Cloud based learning with other learning approaches [1]

Benefits of Cloud Based Learning

Cloud-based learning has combined education with technology in an economical way, making it affordable. Students as well as academicians can be benefited by accessing multiple resources over the cloud in an efficient manner. The experience with working on the cloud, working on the latest technologies, and interacting with the business is a great advantage. Live experience itself trains the learners for the IT world. Better services accessible from everywhere with few resources and paying only for that to be used are the highlighting features. Every academic institution can outsource their content all over the world and can also maintain their services effectively by getting solutions in their problems.

3 EDUCATION CLOUD

One of the first steps in building a cloud solution is identifying the “layers” of the cloud, which include user services and IT services. To communicate with service providers, these services are specified in a request for proposal (RFP) or similar document. User services provide few of the many education specific and generic services that the educationists can access from their devices such as laptops and palm devices. Users can also access generic services directly, as when, for example, teachers and students use their e-mail accounts to interact with peers, colleagues, parents and others. After identifying the user services, the infrastructure of the cloud need to be determined that will be responsible for delivering the education services and other generic services all over the cloud. In Figure 2, the bottom two layers come in IT services defining the infrastructure of the education cloud.

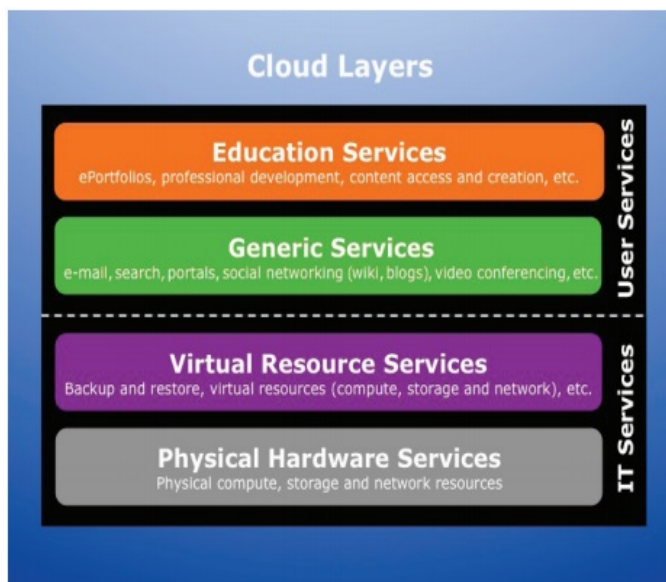


Fig. 2 Education cloud providing User and IT Services [2]

4 CLOUD BASED LEARNING MANAGEMENT SYSTEM

A cloud-based learning management system is a web-based platform that companies can use to deliver, track and report on online courses assigned to their employees to complete. Learning is done online and the data is stored over cloud. Cloud technology provides a platform for creating and delivering online courses with little or no installation requirements. Traditional learning management system needs in house software purchasing requirements which are to be used on company's IT servers and as a result maintenance overhead is also there.

Modern LMS's have some common features: [3]

1. Centrally managed: System deployment, up gradation, its security and all technical support are done centrally. The users are not concerned regarding all these issues. The SaaS vendor is accountable for it.
2. Scalable: All data and resources are over the cloud, and thus number of users and services is not a problem.
3. Redundant: The SaaS vendor has to look upon any risk avoidance or failure recovery schemes to prevent any kind of miss happening.
4. On Demand: Cloud-based SaaS products are pay per use service.
5. Mobile: The most highlighting feature of cloud is its mobility. As it can be accessed from anywhere over the Internet.

Benefits of cloud-based learning management systems [3,4]

1. Cost Cut - Cloud LMS works on pay per use policy, according to which cost is to be given for only used resources. The plans are according to business scales. Configuration of system, updates, training and customer support are added advantages with absolute no cost.
2. Time savings - When cloud service provider themselves take the responsibility of maintaining the project, resources, updating, etc, then the customer can dedicate their whole time on usage and development of the resources. This saves the precious time of the customer and they can concentrate more on creating and selling courses. There are many Cloud LMS in which courses can be seen within minutes after creating.
3. Hassle-free maintenance - Cloud-based LMS providers have Customer Support and IT staff who take care of any technical issues. They ensure working of platform on different browsers as well as test it whenever new change is introduced.
4. Flexible - Being a web based system, cloud based learning platforms are made easily accessible over anywhere. Learners and administrators can easily access and upload materials over the cloud. This helps them in continuous progressing in their work. An internet connected device is only what a person needs. The device can be a tablet or laptop. This flexi-

bility of usage of such cloud provides huge benefit for the learning in schools and colleges.

5. Streamlined training - The process for developing and delivering content through a cloud-based LMS goes through following steps-

- Specify learning objectives and outcomes of various courses
- Creating content
- Importing content on LMS for different courses
- Identify and assign learners for different courses
- Form training programs with sessions
- Generate execution report and completion report along with grades.
- Review, revise and improvise courses timely

The process can be used redundantly so as to improve the course content and the knowledge database to be accessible for all learners.

5 SOME CLOUD LMS AVAILABLE IN MARKET

1. Talent LMS

It is a cloud-based learning platform to train your people and customers. Talents LMS has free plan for up to 5 users, 10 courses and 20MB per file upload limit.

2. eLearning247 LMS by eLearning247,

eLearning 247 offer e-learning course editor that is available 24 by 7 hours. It's easy to use and produces great, instant results.

3. OpenClass LMS (Beta) by Pearson

It is Open to everyone, freely available and very easy to use. OpenCalss is a cloud-based learning management system (LMS) that educational publisher Pearson has offered with a joint venture with Google.

4. Joule LMS by MoodleRooms

Joule LMS is also a cloud-based Learning Management System, that combines open-source Moodle with enhancements and services provided for effective teaching and learning. Moodle Rooms has been acquired by Blackboard.

6 CONCLUSION

Cloud computing can change the picture of education by transforming its way of delivery. It can combine the ideas of peoples over the countries by providing their knowledge over a single platform, which can be accessed from everywhere. Cloud enables the academicians to learn latest skills and undergo different training sessions so as to update them with the current scenarios. It is helping them economically as well as technically to compete and succeed in the global information society.

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