

Cloud Based Learning Environment

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Abstract—E-learning changes the way of teaching and learning. There are different application packages which function as a tool to organize and manage different courses of study in a planned manner. This platform teaches students with the aid of the modern educational technologies. Invention and application of cloud computing in the field of computer and networking has really increases the speed, easiness, accuracy and changes the way of social communications, activities and interactions. It reduces the chances of data loss and total financial involvements.

Electronic Learning, Cloud Computing, Virtual Learning Environment, Learning Platform.

I. WHAT IS CLOUD BASED LEARNING ENVIRONMENT?

Application of Information and Communication Technology (ICT) in the process of education is simply called E-learning. A bundle of educational technologies works with the teaching-learning through e-learning. There are different terms and concepts works with this process such as Learning Management System (LMS), Course Management System (CMS), Learning Content Management System (LCMS), Virtual Learning Environment (VLE), Learning Platform (LP), etc. Each of these is software or a bundle of software programme which performs the job of the administration through computer and automates the way of teaching and learning. When all these functions and activities runs in the cloud computing systems or cloud based environment it is called Cloud based learning environment. The Web-Based applications designed specially for the management of course communication, computer based Student-faculty integration, Control and Supervision of all administrative activities, implementation of online classroom, online examination and online assessment, Overall tracking and all types of reporting, etc.

II. WHY E-LEARNING

Communications on behalf of the course organizer with the students including detail electronic as well as online interaction are easier to control and supervise through one system. At the same time this process reduces the physical work load, time and use or paper related activities. Multiple courses can be handled including addition or uploading, deletion, modification of course materials in the form of text, images, audio, video, discussions, virtual classroom, etc. through single platform. Easy to general students details with address, etc.

Electronic as well as online assessment and grading with digital evaluation sheet, mark-sheet, grade card and certificates, can be issued including simultaneous access through intranet and internet. Machine generated calculations related with different assignments and grade scoring.

Better student interaction through separate user accounts. All time access to the course related information via text, chat, wiki, messages, news, announcements, etc. Need for development of user community or forum among the students of the same course. There is no comparison in between the absent students and regular students in respects of the all types of course related information, assignments, test, etc. The students are also able to view messages or course related information through Alert or mail services. They can register themselves for any course through online.

Innovation of Talent management in the field of performance appraisal and proper evaluation of staff, etc. is the important tool today. With the application of the LMS as an aid to the total learning and evaluation process, employee assessment may also be done smoothly by the management.

III. HOW LEARNING MANAGEMENT SYSTEM WORKS?

A. Users' Point of View

According to the users aspects it consists of three parts viz. Administration, Teacher or supervisor and Students or Pupil. It makes communication between teachers and students in one way; between administration and Students in another way; then between administration and Teachers in another way. Teachers make communication with the students with some dialogues like online assignments, online classes, online test, etc. Teachers and students both may have access to the course materials and other online resources.

B. Functional Point of View

In the modern day environment every learning management system creates a database of the each and every text entered into the system as a backup. At the same time the system runs through the web browser and so it is very fast, secure and user-friendly.

IV. CLOUD COMPUTING

There are many definitions of cloud computing. According to oxford dictionary "the practice of using a network of remote

servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.”

The development of the computers may be divided into two Eras. One is Personal Computing (PC) Era and the other is Cloud Computing (CC) Era. If we compare the Cloud computing era with the personal computer era we could observed that the PC era is decentralized computing era but the cloud computing era is a centralized environment as like as distributed computing. It works more efficiently than the PC era computing. Cloud computing is more fruitful for the present day environment as it is much more cost-effective, high performance enable technologies, easy to use and more personal than the any other personal computer concepts.

V. MODELS OF CLOUD COMPUTING

Considering the different definitions of cloud computing it can be categorized into three as the service model and four of deployment model of cloud computing:

Service Model

- Infrastructure as a Service (IaaS);
- Platform as a Service (PaaS);
- Software as a Service (SaaS).

Deployment Model

- Private cloud
- Community Cloud
- Public Cloud
- Hybrid Cloud

VI. SERVICE MODEL OF CLOUD COMPUTING

A. Infrastructure as a Service (IaaS)

This type of cloud computing is generally provide storage and processing capacity to the users who would be able to access or perform the different services with the help of the different types of modern hardware devices having online connectivity. The service provider generally manages huge quantity of computing resources to provide different types of on demand services to their customers. The service provider has the capabilities to arrange, manage and customize their resources as per the requirements of the end users with the help of the storage network capacity. In this system all the services are delivered through virtualized arrangement. In this environment the services are being offered with computing resources including servers, networking, storage, and data center space may be on a pay-per-use basis.

threshold value, the corresponding the intermediate node is marked as malicious. By simulation results, we have shown that the mobility oriented trust system achieves better detection efficiency, good malicious node detection while attaining low false positive and delay constraint.

B. Platform as a Service (PaaS)

In lieu of the virtualized arrangement the service provider could set up a stage through software platform to run the required computer generated services to the customers. The service provider may also organize or install the customer created programme on the cloud to provide different services. PaaS provides a cloud-based platform with the entire thing required to support the complete lifespan of building and delivering web-based applications—without the cost and complexity of buying and managing the underlying hardware, software, provisioning and hosting.

C. Software as a Service (SaaS)

This may be the substitute of the locally designed software for any specific application purpose. In this case the service providers may also design the software considering the special application purpose of the customer and this software may run over a network as per the requirements. In this environment the Cloud-based applications run on distant computers “in the cloud” that are owned and operated by the service providers and that connect to users’ computers through Internet and, usually, a web browser. The G-mail service of Google may be considered as a cloud-based SaaS application which is the better substitute of the email programme run on our computer like Outlook.

VII. DEPLOYMENT MODEL OF CLOUD COMPUTING

A. Private Cloud

when the cloud infrastructure is built, owned, managed and operated by by an organization having different consumers or business units. Then it is called private cloud environment. This may be built, owned, managed and operated by the other body or organization or in collaboration with the parent organization also.

B. Community Cloud

when the cloud infrastructure is designed for the use of a specific community of consumers of the different organizations which are involved together for the same interest of activities then it is called Community Cloud infrastructure. This cloud infrastructure may be built, owned, managed and operated by a single or more of the organizations in the community or a third party or some collaborative activities among them.

C. Public Cloud

This infrastructure is designed and available for the use of the general people. This cloud infrastructure may be built, owned, operated and managed by a corporate, academic or government organization or some collaboration among them.

D. Hybrid Cloud

If cloud infrastructure is designed with the combination of the two or more infrastructures of private, community or public cloud, then it is called Hybrid Cloud.

VIII. FUNCTIONALITIES OF CLOUD BASED LEARNING ENVIRONMENT

Cloud Based LMS must have the following functions and features:

- Unlimited Course Addition
- Uploading unlimited files
- Upgrade, edit, remove as and when necessary
- Facilities to use Personal documents, files and presentations
- Content can be re-used and linked from Scribd, Sharepoint, YouTube, Vimeo, Wikipedia, etc.
- Upload options of SCORM files
- Must be logo, theme and template based
- Database based
- Indexing
- Archiving
- Searching and Retrieval
- Building of Test
- Survey building
- Building of learning paths
- Courses sharable with non-enrolled users
- Issuance of certifications
- Selling of courses
- Personal domain
- Extension of user profile
- import/export
- Category and group of users
- Segregation of users and courses according to stream
- Categorization and identification of different stream with domain and theme
- Detail reporting
- Event calendar management
- E-mail and message service as per event calendar
- Usable through all modern devices
- Supports and up-gradations
- Integration with other services
- Integration with Content Management Systems.

IX. CONCLUSION

In the era of cloud computing it is time for all the discipline including library and information science discipline to enhance the use of Learning Management Systems particularly the cloud based Learning Management Systems in the regular course curricula and distance learning programme. By providing information through online portal using LMS it is easy to market Course curricula including live and practical training facilities to the users' community. A department can manage the whole process with the minimum cost and lower

technical knowledge. There will be better interactive communications with the users as there would be a high-end automation in this Cloud Based Learning Environment.

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