

Information Sharing System using Cloud for Education

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Abstract

Due to increase in the demands of educational aspects, institutes have to spend a lot on the infrastructures to fulfill the demands of students. Now-a-days cloud computing can be used to achieve better solutions and to improve the quality of educational system with less cost, flexibility and accessibility. In this paper, we develop a cloud computing architecture which provides a platform for information sharing. The cloud computing environment is created using Microsoft Windows Azure Software. Then we develop a web-based application for information sharing between a teacher and a student. Teacher creates a group of his/her subject, students can join the group and can access the data uploaded by the teacher. The data is stored on cloud and necessary security for the data is given by the cloud itself.

Keywords – Cloud Computing, IaaS, PaaS, SaaS, Microsoft Windows Azure

1. Introduction

Cloud computing is a distributed computing system that provides infrastructure, applications, computational platform and storage as services on demand by the user [1]. In traditional educational system, everything is done on paper like homework, project work, examination, maintaining attendance records etc. Keeping records secure and always available is a tedious work. Cloud can help educational systems by rapidly increasing the storage capacity, maintaining data secured, providing students the up-to-date information like class notes, papers and projects etc. For small institutions, purchasing costly software and its maintenance can be avoided by using it as a service over cloud and pay-as-you-use[.]. Cloud can also help improve the collaboration among teacher and students and also enhance team work. It helps students to come up with innovative project ideas that can be shared over cloud.

Using cloud, maintaining data secured is no more a difficult task. Whenever a data is sent to the cloud, it is always stored in an encrypted form and be available wherever we go. Now-a-days by sitting at home, students can gain knowledge/information regarding their interested subject through the internet. Students can work with team members to share knowledge and be sure that they won't forget their homework when they go to the institute as it will be on cloud which can be accessed from anywhere, either at the institute or home.

2. Related Work

The Use of Cloud Computing on universities has many benefits such as accessing the file storages, e-mails, databases, educational resources, research applications and tools anywhere for faculty, administrators, staff, students and other users in university, on demand. Furthermore, cloud computing reduces universities' IT complexity and cost [2].

Using cloud computing, the education can be made available to each and every person in the country without the difference of cast, creed, or any type of financial issues. There are isolated areas situated not only at villages but also outside the major cities where schools are not available. If schools are available then there is a lack of good teachers. All such problems can be solved using cloud computing [3].

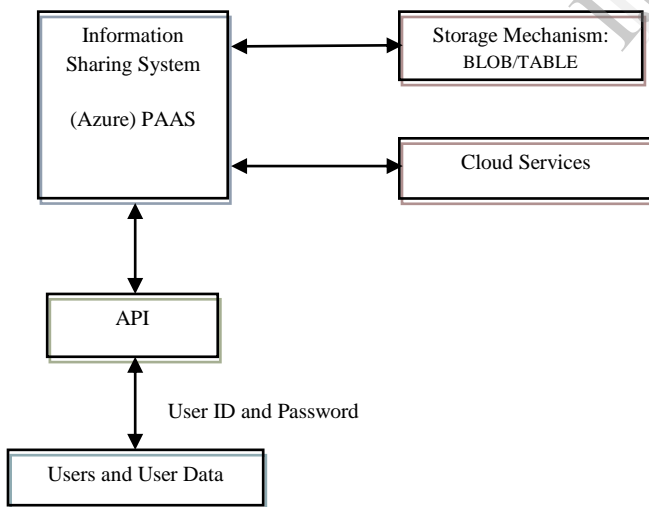
The paper discusses the use of cloud computing in the educational and learning arena, to be called "Education and Learning as a Service" (ELaaS), emphasizing its possible benefits and offerings [4].

Cloud computing can be used for data storage service that do not require end-user knowledge of the physical location and configuration of the system that delivers the service. Since the data transmission on the internet or over any networks are vulnerable to the

hackers attack. We are in great need of encrypting the data. This paper provides data storage and securing data in cloud computing system using RSA algorithm. In this algorithm some important security services including key generation, encryption and decryption are provided in cloud computing system [5].

Aim of this paper is to protect the data stored on cloud by using security algorithm. Cloud computing model advances many web applications because of its elasticity nature. This type of computing reduces operating cost and increases the efficiency of computing. Even though efficiency increased, still there is security threat for the data that is stored in third party area especially in Internet. Due to data security issue with cloud computing many business organization have fear in storing their data in Cloud. So the most challenging task of the business organization is to provide high security for their data since the data are sensible related to their business. To ensure the security of data, security is provided by implementing RSA algorithm using cloud SQL to the data that will be stored in the third party area [6].

3. Block Diagram



Block diagram clearly explains that as the system does not require any server level credential like the server storage IP address or the password which are essential in both CDN and with any other backend like mysql and sql server.

Once user registers to the system by supplying the username and password, system uses cloud's authentication and registration module to check for the duplicate username and registers the user. The password is stored in the database. The data is encrypted and stored in the cloud.

4. Results and Discussion

Here website is created where a teacher or student can login to share information. This website is deployed on cloud where all the data and computing resources are managed by the cloud itself. A teacher/student can perform various operations that are listed below.

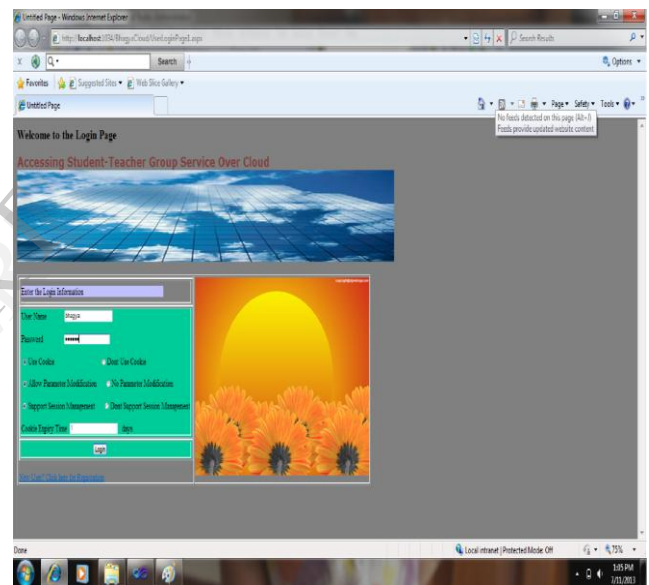


Fig. 1. Login Page

Fig. 1 shows the login page of the website. The user of the website can be either a teacher or a student. If the user is already registered, he/ she will be redirected to the home page. Otherwise the user must be registered first using registration page.

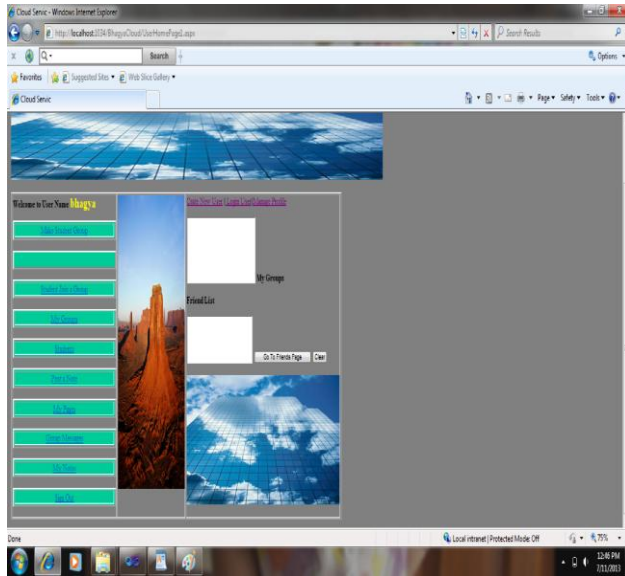


Fig. 2. Home page

Fig. 2 shows the home page which provides the option to perform the following operations.

- Create/Delete account for the website on cloud
- Create/Delete the group of students
- Join/Disjoin the group
- Create/Delete new project ideas
- Manage the user profile

5. Conclusion

Using cloud, the drawbacks of traditional education system like small classrooms, cost, flexibility, accessibility, shortage of qualified teachers etc can be solved. The needs of the institution can be fulfilled and in addition the attendance and class performances can be maintained effectively. Cloud helps improve data availability, storage capacity and reduce cost of purchase of software by using SaaS.

This application can be extended to small enterprises where there is a lack of hardware and software. Using cloud, this drawback can be overcome by using infrastructure-as-a-service and software-as-a-service by paying for the services used.

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