Goesmart Social Media Education Using Cloud Computing

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Abstract

Cloud Computing has great potential of providing robust computational power to the society at reduced cost.It enables customers with limited computational resources to outsource their large computational workloads to the cloud and economically enjoy the massive computational power, bandwidth, storage and even appropriate software that can be shared in a pay per use manner. Despite the tremendous benefits security is primary obstacle that prevents the wide adoption of this promising computing model especially for customer when their confidential data are consumed and produced during the computation. Treating the cloud as an intrinsically insecure computing platform from the view point of cloud customers we must design mechanism that not only protect sensitive data by enabling computation with encrypted data, but also protect coustomer from malicious behaviours by enabling the validation of the computational result.Such a mechanism of general secure computation outsourcing was recently shown to be feaisible in theory but to design mechanism of general secure computation outsourcing was recently shown to be feasible in theory, but to design mechanism that are practically efiicient remains challenging

Introduction

The social media development is so rapid in recent years. Based on survey result, in January 2005 social media sites on the Internet has reached 115 million members around the world. Facebook, Myspace, LinkedIn, Friendster, and others are examples of successful social media sites to reap hundreds of millions members around the world. From the Facebook's official website, it is currently recorded has 845 million active members by the end of December 2011 .

Social media is the real model of the world's communication by providing a platform to facilitate communication and sharing among users According to practitioners of information technology, cloud computing is a paradigm that sees IT as a service in which an IT resource (infrastructure, platform, and software) are offered through the internet to users at an affordable price as per the usage . The rapid development of social media and cloud

computing technologies have lead to create a social media based on cloud computing also known as a social could.Social cloud facilitates third parties to add services to Goesmart web. Through Goesmart students and teachers can share useful information.

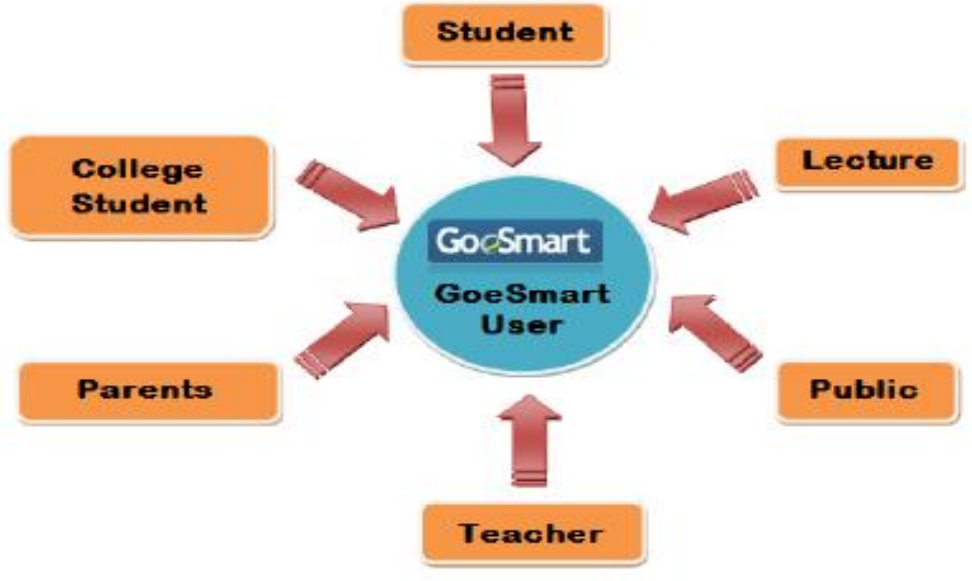

Figure 1: Users of Goesmart

Users of goesmart

Goesmart main users are those who are directly or indirectlyin any educational environment. Based on below diagramGoesmartuser classification is divided into:

- **Student**

Through Goesmart, student can collaborate and share withothers students from various schools to a positive educationalactivities.

- **Teacher**

Through Goesmart, teacher can collaborate and share withothers teacher from various schools. For example throughdiscussion forum between the teachers it can be used to find the best teaching methodology for students. Then the teachercan also collaborate with the students to discuss a lesson'ssubject .

- **Lecturer**

Through Goesmart, lecturer can collaborate and share amonglecturer or students. For example, the course material isuploaded by lecturers to Goesmart for enriching course material for students or other lectures.

- **Campus Student**

Through Goesmart students can collaborate and share withother students across campus. Goesmart can be a beneficialdiscussion, communication, and information sharing for each

other students.

- **Parents**

Most of the social media's active users is dominated byteenagers and those who are students. Virtual interaction onsocial media sites is generally not socially controlled.Goesmart make the parents as one the user entity to helpmonitoring the social development as well as social achievement development of their children in school.

- **Public**

As a media for public such as alumni or education practitionerso they still able to communicate and seek information abouttheir school or campus through Goesmart.

Existing system

The cloud computing functionality requires qualified server. Without implementing goesmart design server cannot run goesmart services because all functions depend on server.and in existing system there was no collaboration of social media and cloud computing technology which is called as social cloud.

Proposed system

In order to overcome the problem of server Goesmart has collaborated social media and cloud computing technology to produce what so called has social cloud .Social cloud will facilitate and enhance the third parties contribution in order to add services

SOCIAL MEDIA

One of factor that supports the development of social media isthe concept of web 2.0 technology. The examples of Web 2.0applications is social networking sites like facebook, twitter,blogs, wikis, youtube, and others.World Wide Web inventor, Tim Berners-Lee stated that Web2.0 is a medium for collaboration, a place where all users canmeet, read and write the information activity. In terms of TimBerners-Lee, this condition is called the Read / Write Web .According to Shetty's opinion, Web 2.0 is a web applicationwhich has eight characteristics

- **User Centered Design.**

A web design which is created in a way that istfulfills every possible need of the end user andempowers the user to perform certain customizationswithin the design..

- **Crowd Sourcing.**

Every small unit of contribution is important to aWeb 2.0 service. Millions of such contributionseventually lead the website to state of higherrelevance.

- **Web as A Platform.**

Any condition of a user (client) does not affect thequality of services application. Users should notdepend on the operating system (Windows, Linux,MacOs, Unix, etc) that they used to access the webapplication.

- **Collaboration.**

Wikipedia is a successful example of collaboration inbuilding the knowledge. Since previously users couldonly access the encyclopedia only. Collaboration isone of the important characteristics of Web 2.0.

- **Power Decentralization,,**

Back Then, most of the services used to beadministered and was not automated. But Web 2.0services follow a self-service model rather than beingan administrator dependent

- **Dynamic Content**

Dynamic content is the effect of crowd sourcingcharacteristic where each user has equal opportunityto contribute to the development of services andcontent

- **SaaS (Software as a Service)**

Applications that have the characteristics of Web 2.0is an application that supports the implementation ofcloud computing. Web 2.0 applications are Softwareas a service (SaaS), software is available as a webservice without depending on the user's platform.

- **Rich User Experience**

Use of XHTML,CSS 2.0,Ajax,flex and other similarrich media producing technologies have potentiallyhelped making the web services lighter, faster, lesscluttered and more appealing to the end user. Theability to integrate various sources of digital mediamakes the user is always connected with the serviceand connected with the effort of updating, sharingand collaboration with other users.

In addition, McAfee provides another view of thecharacteristics associated with Web 2.0. The characteristics ofWeb 2.0 can be seen from the acronym SLATES, namelySearch, Links, Authoring, Tags, Extension

- Search, information can be easily searched via keyword search.
- Links convey the same information that connected to each other in a web ecosystem through connectivity between networking tools.
- Authoring, the ability to create, update and edit content through users collaboration.
- Tagging, content can be given different categorization by the user to facilitate the process ofsearching without being influenced by pre-existing categories. Collection number of tags is made by many users within an application system known as folksonomies (folk taxonomies).

- Extension, the software is used to produce web application also serves as a document server, so users should not have difficulty with the extension that generated by the in use web application
- Signal, the use of RSS syndication technology to notify users of changes to the content.

Cloud computing

Cloud computing is the combination of computer technology(computing) and Internet-based application developmentInternet-based (cloud). Cloud is a metaphor of the internet, inCloud Computing, 'cloud' is an abstraction of a complexhidden infrastructure. Cloud computing is a method ofcomputing in order to presents Information Technology as aservice, sothe user can access it through the Internet ("in the cloud")without necessity to find out what is inside. Regarding to itsimplementation, cloud computing is integration between thevirtualized physical sources, virtualized infrastructure,virtualized middleware platform and another application ismade for the advantage of business users. By using CloudComputing, the user can focus on its core business, and nolonger bother with the issue of managing IT. Cloud is a metaphor for internet in cloud computing.

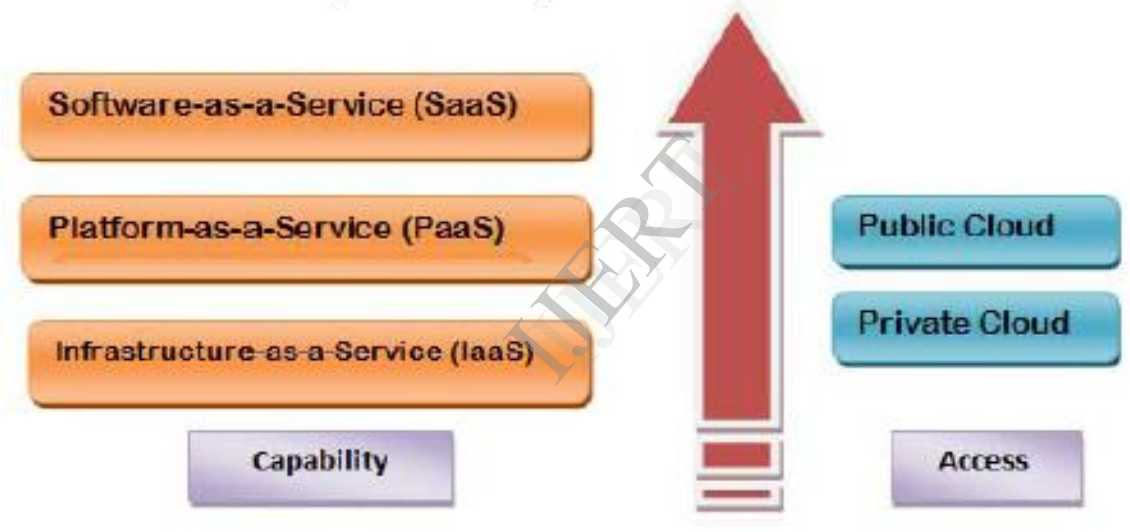

Figure 2: Cloud Computing Architecture

Software-as-a-Service (SaaS) services focus on providing amodel of software development that developed by vendors orthird parties and possible to be used by multiple users throughthe internet or cloud. Some vendors of SaaS services are:

• Google Apps: a service provider web-based officeapplications such as e-mail, calendar, and documentmanagement.

• salesforce.com: application service provider of customerrelationship management (CRM).

• zoho.com: application service provider of web-basedenterprise.

Infrastructure-as-a-Service (IaaS) focus on providingcomputing infrastructure through the Internet. Some vendorsthat providesIaaS services includeare:

• Microsoft Live Mesh: it provides a distributed file accessservice for individual users.

• IBM Computing on Demand (CoD): provide the servicesthat the server can be configured with additional data storage.

• Amazon Simple Storage Solution (S3): provides data storageservices with dynamic capacity.

Platform-as-a-Service (IaaS) focus on providing applicationdevelopment platform for individuals or organizations throughthe Internet. Several PaaS vendors that provide services include:

• Google App Engine: provides a platform for runningapplications created by developers.

• Microsoft Azure Services Platform: provides a platform forcomputing and storage services on demand.

• Yahoo! Open Strategy : provides a service platform for web-based application development.

Basically, the cloud computing resources accessibilities are divided into:

Public Cloud's services are destined for publicpurposes and usually free. For example: Facebook,Yahoo Mail or DropBox.

Private Cloud is a service that is operated only for aparticular organization. For example: Telkom Cloud,Biznet

Hybrid Cloud is a mixed composition of cloud services.Remain a stand-alone entities, but its linked bytechnology that enables data and application portabilitybetween the cloud.

Cloud computing has some advantages, such as:

- Cheaper, because users do not need to provide theirown IT infrastructure as well as the human resources.
- More reliable, because the data is maintained 24/7 bythe provider
- More efficient, because users are able to choosewhich services that they need and will be charged according to the services that they choose and use only.
- More compatible, because it can be accessed fromanywhere through any internet connection.
- More secure, since all data is stored in a centralizedEnterprise server with backup server attached.
- More simply, because it does not need a deepunderstanding of IT systems.

The cloud computing functionality is requires a qualifiedserver. Without a server, it is impossible to run these services,because all functions depend on a server- enterprise systems.

Terms of a suitable server for Cloud Computing

- **Virtualization capabilities**

Virtualization is the ability to run multiple virtualservers in the main server. Virtual Server can be runusing the features and special applications, such asVMWare or ProxMox. With a virtual server, the userdoes not need to buy lots of servers to run differentserver functions, such as web server, database server,FTP server, etc.. Virtualization cloud computing isabsolutely necessary, in order to serve the user with avariety of software platforms.

- **Using the original server's architecture andcomponents.**

A cloud computing Server is a hardware that with aproper server architecture and components. This isimportant because cloud services must be able towork non-stop (24-hour x 7-day), capable ofhandling the job request in large quantities and canhandle data in a large capacity. For instance, some ofthe important components that a server technologymust have, such asare: Processor, Motherboard, HardDisk and Power Supply

- **Use a server with a specific main board'sspecifications**

Such as dual-Gigabit Ethernet LANports. It has capability to distinguished the internetprotocol's functions from different server.

- **Have the ability to scale-out**

Scale-Out Server is a unique server's feature whichmakes it different from other computer devices.Scale-Out is a feature where the server's unit isexpandable as well as multi users oriented.

Analysis

This paper will present the concept of social cloud in cloudcomputing with case the study case is an education based ofsocial media applications which is GoeSmart social media is an interactive, informative andcommunicative media for education, with the objective is toincrease the intelligentsia of all level of generations in society.Lectures students, Alumni, and Parents are the main target asthe users. The Geosmart's website, provide a content-basededucation feature, which intended to encourage the users ineducation process.From the below conceptual diagram we can know that Goesmart can be implemented using four entities that are User, Technology,Materials,Content.Geosmart social media is an interactive, informative andcommunicative media for education, with the objective is toincrease the intelligentsia of all level of generations in society.Technology becomes an important part of Goesmart socialmedia development

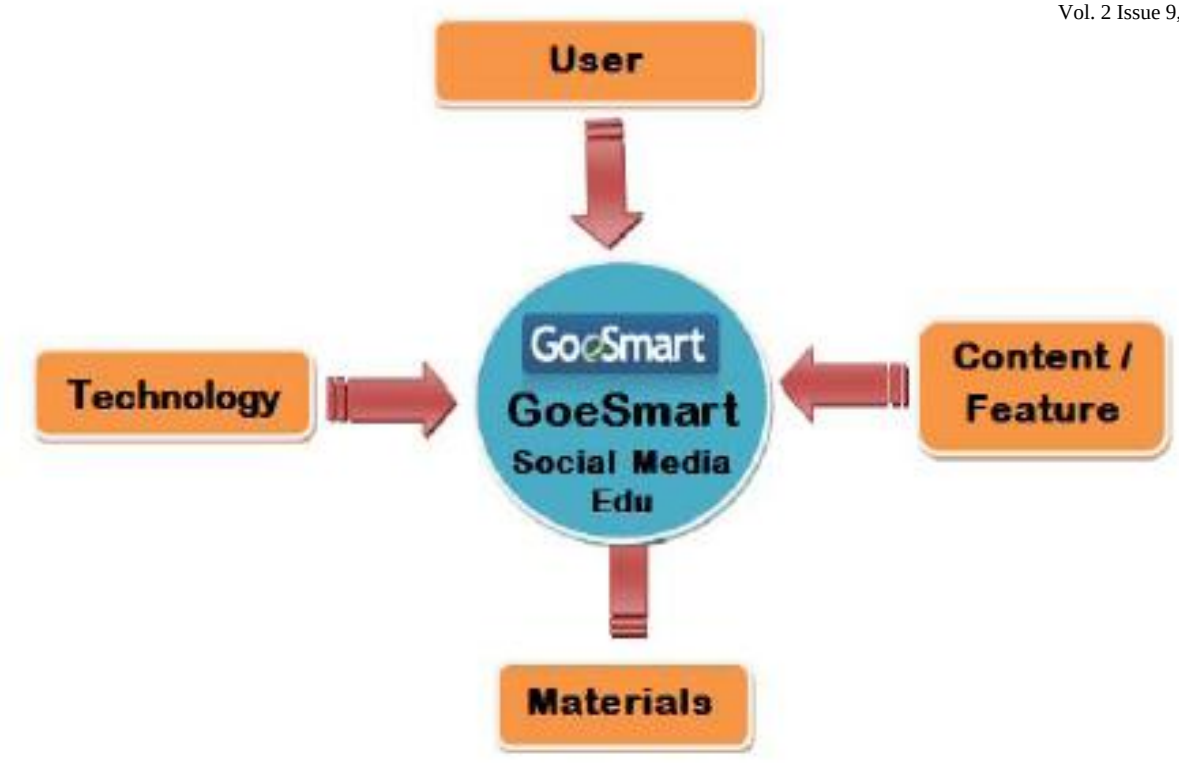

Figure 3: Conceptual diagram

Technology Entity

Technology becomes an important part of Goesmart socialmedia development. Goesmart's Content/ features developedin two platform technologies as shown in figure4.

- **Web platform**

Social media application represents the web 2.0 generationwhere the internet network is utilized to run the webapplications. So that the web base technology became themain platform for Goesmart development.

- **Mobile platform**

Convergence of information and communication technologyhas made the rapid development of mobile technology.Currently the mobile devices are equipped with the operating system and applications to access data services via theinternet. Goesmart development that based on mobiletechnology is aims to enhance the utility and portability of the user. The Goesmart's mobile technology Features or servicesis value-added service to bind the user loyalty.

For exampleGoesmart Messenger is an Instant Messaging applicationbased on Android platform that is used for chatting betweenGoesmart users. Hence Technology becomes an important part of Goesmart socialmedia development and Goesmart can be developed in both web platform and mobile platform. Services are offered through the internet to users at an

affordable price as per the usage . The rapid development of social media and cloud computing technologies

Figure4 : Technology entity

Feature Entity

Goesmart as a social media education has several importantfeatures for the educational community, those are:

- Discussion Forum
- Chatting
- Educational materials
- Competition
- Album
- Ranking
- Try out
- School Page
- Badge
- Goesmart Mobile

Education Materials

As social media, Goesmart collaboration has a capability toplace various parties to contribute educational materials, as incontent or applications. Goesmart provides several businessmodel options for the contributors, such as free content orpaid content (on demand). The

contribution of everyGeosmart's community users regarding to the educationalmaterials, will lead to a collaborative educational materialservice.

Figure 5: Education Materials

Goesmart design as a social cloud

Goesmart Design in cloud computing as a social cloud willfacilitate various parties, so they can give lots of contributionto Goesmart.In the social cloud, every service should be accessible bycertain geosmart's registered user. The objective is to provideinteraction between users and services

For example, ateacher would like to contribute paidmaterial/content/application education to the user communitywith a charging mechanism from Telco provider.

Thearchitecture of Goesmart social cloud can be described asfollows:

When user requests for a service to Goesmart the request will be stored in content and then charging engine checks whether the requested service is charged service or free service if it is charged service then telcho service provider will provide the service and MDS is a component that provides information service.

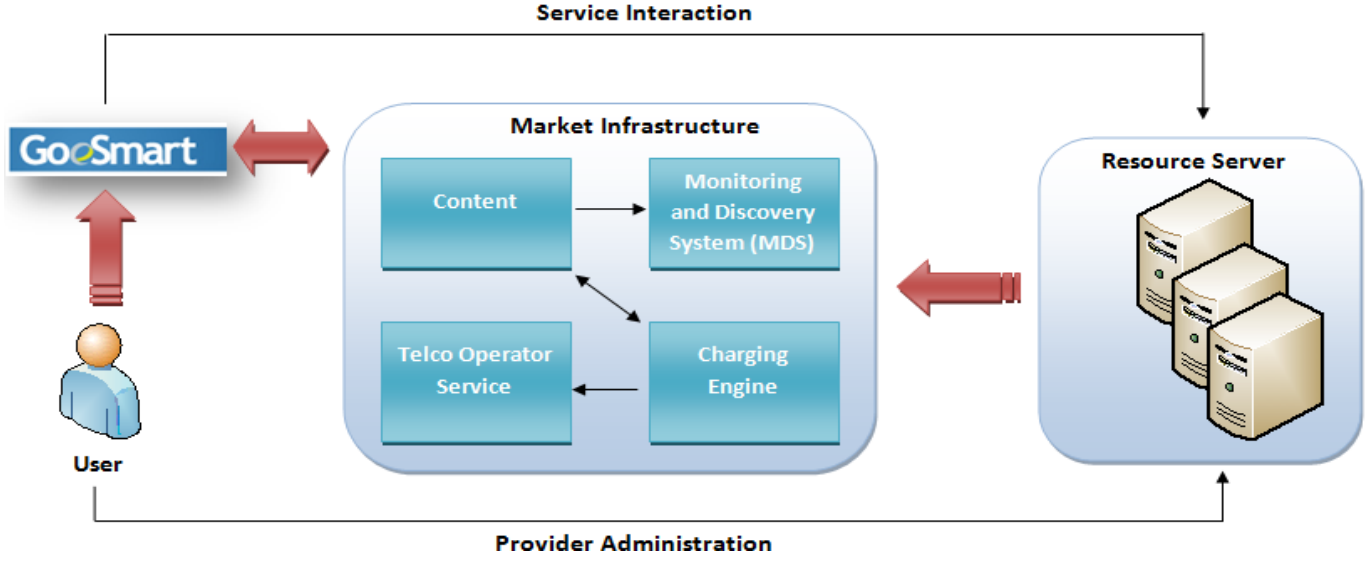

Figure6 Social Cloud Architecture

The social cloud architecture contained main componentincludes :

- Goesmart API
- Monitoring and discovery system
- Telecommunication provider
- Registration
- Goesmart API

It is used as an interface for third parties todeliver both content and application services to the siteGoesmart. Users who will upload the service to the siteGoesmart will be given a page with the URL interfacehttp://apps.goesmart.com/socialcloud/ access that willbe forwarded to the server and will result in a responsepage as interface/preview content. Processes that occur when users upload the service toGoesmart's Store depicted in the

following sequence diagram:

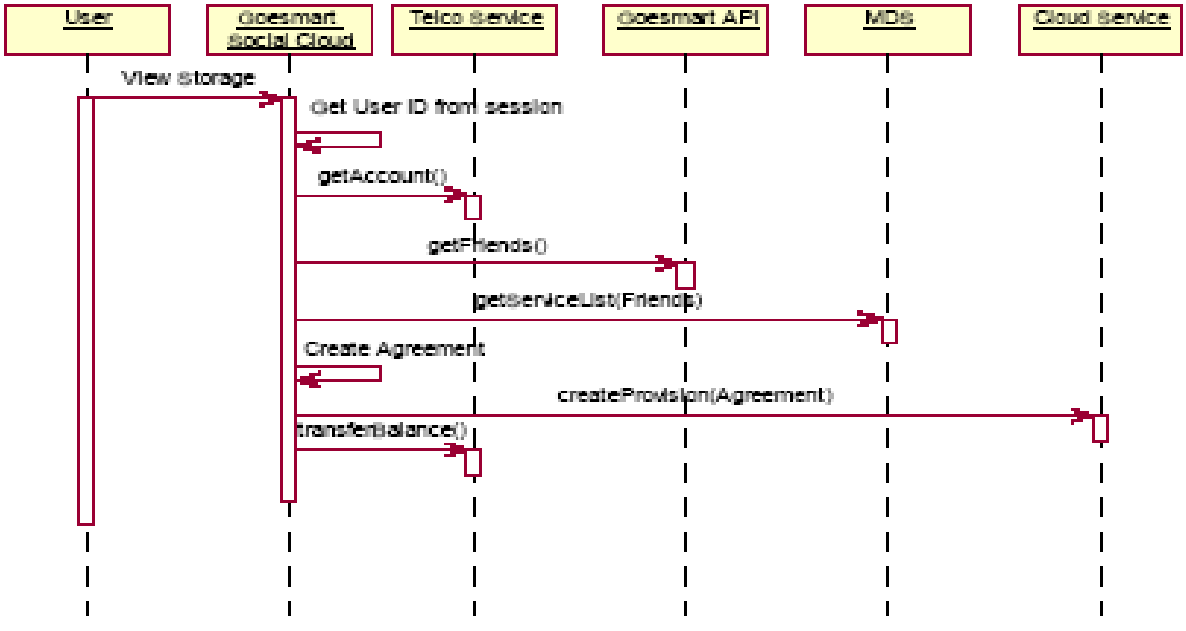

figure 7 :Sequence diagram of uploading process

- **Monitoring And Discovery System (MDS)**

MDS is a component that provides informationservices, what services are contained in the resourceserver. Through MDS services will be updatedperiodically and stored in the storage.

- **Telecommunication Provider**

Telecommunication providers will provide the contentinto system services. The system will communicatewith the existing services on the Goesmart‘s webTransaction processing process only conducted forGeosmart’s registered users.

- **Registration**

The users or contributors of Goesmart’sservice, shoulddo the registration process first to get Goesmart ID.

Theregistration process can be seen in the followingsequence diagram:

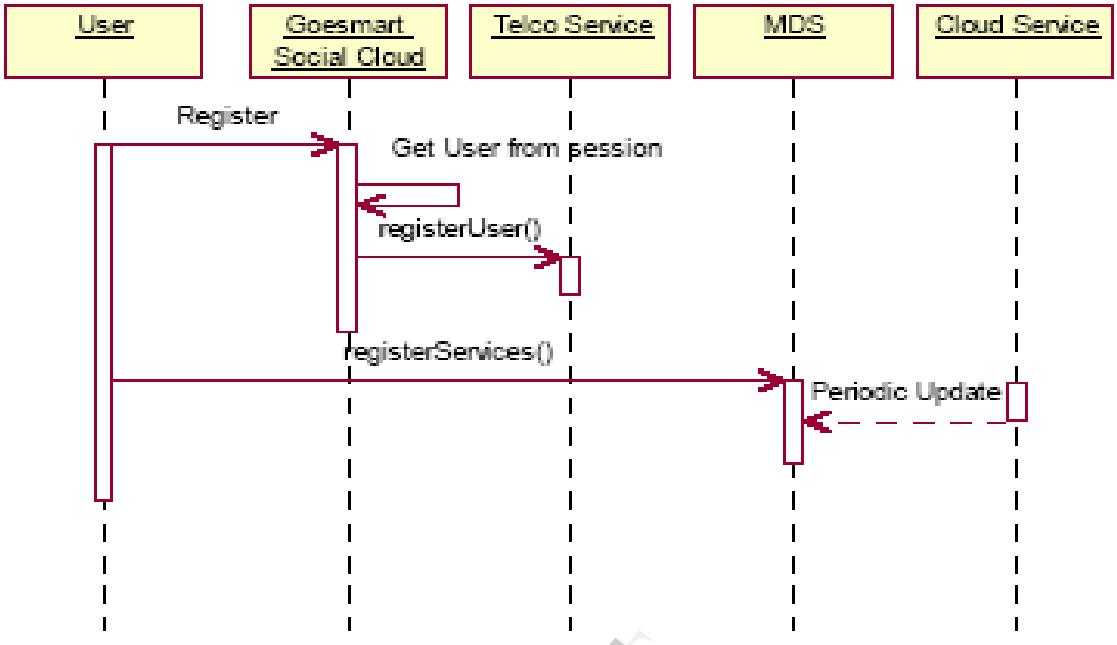

Figure9 :Sequence diagram of User registration process

Figure10 :Login page of Goesmart

Conclusion

The increasing users of social media on the Internet show that social media has become the main mediaof communication and sharing information sharing among people. Cloud computing technology can be used to support social media development or social media based on cloud computing. Known as social cloud.Social cloud gives benefit regarding to the investment aspect and facilitate various parties togive contribution of service on social media.TheGoesmart provides 24/7 education to users

Future enhancement

Currently Geosmart social media education in cloud computing is being used in Indonesia further in future other countries are trying to implement geosmart and it will be implemented as soon as poosible

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