A METHODOLOGY FOR MOBILE COLLABORATIVE LEARNING THROUGH DISTRIBUTED COMPUTING

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ABSTRACT

Because of the improvement of versatile figuring and remote innovation, these days cell phones have turned into a significant device for learning and joint efforts. Portable Mobile Collaborative Learning (MCL) is a methodology whereby clients are for all intents and purposes adapting together by utilizing their cell phones by means of a correspondence organize. This learning procedure occurring by a methods for discourses discussions, talking, sharing learning materials, for example, records, video and sounds. As the interest for getting to these internet learning assets increments, there is a concerned issue on the most proficient method to deal with this immense number of clients to access benefits constantly and at the same time with an assurance of better benefits.

Distributed computing is seen as an answer for this issue. It has a critical impacts in it ensures the clients better execution, effectiveness, security just as upkeep with a base expense. The presentation on Mobile Collaborative learning in this field is extremely helpful the same number of the understudies and different people bear to claim gadgets that can be utilized in the joint effort and learning process by means of cloud condition, for example, advanced mobile phones, tablets and PDA. In this paper, a Mobile Collaborative Learning, MCL engineering is proposed, the design depict in subtleties on how the clients will ready to team up utilizing their cell phones to access and share data for learning reason. Distributed storage is given so as to give wide and adaptable administration that will ensure accessibility of administration constantly.

Index Terms: MCL, PDA, Distributed Computing.

1. INTRODUCTION

With the bleeding edge of innovation, these days everything treated as an administrations beginning from equipment, programming just as stage. Because of the progression of portable processing and remote innovation, Mobile Collaborative Learning (MCL) become a well known service among those administrations offered through the correspondence arrange. In a basic importance, MCL is a methodology whereby clients are practically adapting together by utilizing cell phones, tablets and PDA through a correspondence organize. This learning procedure occurring by a methods for discourses gatherings, visiting, sharing learning materials, like documents, video and sounds. Not at all like to study hall learning, because of the versatility[11] of the portable administrations this methodology gives a more extensive region to a student to pick up anything accessible in the cloud server, anyplace, whenever gave that the system association is accessible.

Late explores uncovered that MCL is for the most part escalated model for leading exploration particularly separation and e-learning condition. This methodology offers various highlights and functionalities to all clients so as to get to online information that is especially complimentary, wide, and dynamic and in fluctuated socioeconomics.

Since the expenses for cell phones to utilize this administration are moderate to the vast majority of the clients, this methodology appeared to confront a few difficulties on its execution[9]. These difficulties beginning from predetermined number of assets to suit those clients, for example, equipment and programming, arrangement of poor administrations, for example, execution, security, unwavering quality and versatility. These will be remembered fondly in these MCL dependent on customary model of servers for community learning. To conquer those confinements, MCL dependent on distributed computing appeared to be an answer. Its capacity to give better execution, security, productivity and systems for upkeeps for the administrations under a base expense appeared to be the purpose behind huge numbers of the buyers to pick cloud in their usage for maintaining their everyday business and arrangement of their administrations. This announcement is bolstered by the realities that, the accomplishment behind all administrations suppliers and business organizations[1], for example, Google, Amazon, EBay, Flip kart, IBM and others depend on the trust of the purchasers to these organization, and these trusts are brought about by arrangements of good administrations offered which are the aftereffects of actualizing distributed computing to offer those administrations. In this paper, we present a proposed Remote Mobile Collaboration Learning, MCL dependent

on distributed computing. The edge work will work within the sight of cloud server, in which the assets materials and different things are accessible in the cloud for assurance of accessibility and security of the administrations constantly.

2. LITERATURE REVIEW

In brief, the creators proposed a system for shared learning known as Co Mobile. In this structure, distinctive open sources operational segments were sent, for example, MMS, SMS and control servlets. A texting system community oriented getting the hang of utilizing portable is proposed in study. In this structure, contrast customer's applications that dispersed from different area contain texting customers and Java Spaces[2]. A portable learning hypothesis is proposed in their examination indicates how 3G innovation utilizing cell phone turns into a powerful path for an intuitive learning process in which numerous degrees of planning strategies and methodologies can be utilized for this reason. A customer server based engineering for Mobile Collaborative Learning is proposed in concentrate number, this design is a virtual learning condition that utilizes cell phone for joint effort reason. The taking in substance from this engineering are intended to be put away in the server and they are open at whatever point they are required for instructive reason. What's more, last, Chiu Pin Lin in his examination number proposed a learning situation later called it as Mobile Collaborative Learning Environment (MCLE).

3. MCL ENVIRONMENT

Collaborative Learning

The methodology of Collaborative learning is built on the indication that learning procedure to be sure an open demonstration whereby discussions between various students takes place. So as to make decent communitarian learning, a cycle of various stages was proposed which go about as a guide to be pursued for effectively planning and execution of coordinated effort learning[6]. The stages associated with this guide are as per the following:

- Enhancing Interdependence
- Collaboration Assessment
- Creation of Boundary-Spanning Skills
- Practice Collaborative Learning
- Capturing and Disseminating Learning
- Creative Value

Figure 1 below shows the proposed cycle to be followed while designing and implementing collaborative learning.

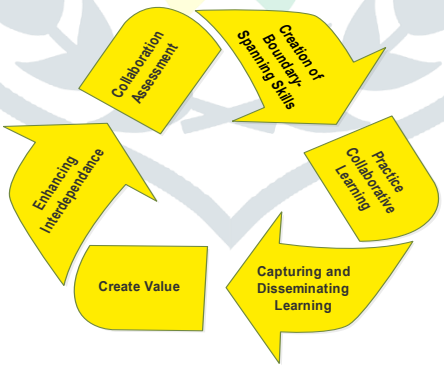

Figure 1 - Road map cycle for designing and implementing collaborative learning.

The above road map is going parallel with some different activities that are necessary and required during the implementation of collaboration learning. These activities include: -

- Setting clusters for each member.
- Monitoring each member
- Displaying member status
- Synchronization of multiple discussion
- Delivering messages

The above-mentioned activities will smooth the collaborative learning process management for better performance and evaluation in general.

Mobile Collaborative Learning

As mentioned earlier, due to advancement of wireless technology, mobile technology has been altered as a main communication tool since it is well suited in attractive collaborative learning environments. The perception of Mobile Collaborative Learning (MCL) is totally differing from that one of classroom based learning. This educational approach offers several opportunities, such as providing chances to the group of users who are occupied in similar or different organizations to contribute in achievement of certain goal by means of mobile devices. Typically, different components are involved during the designing and implementation. In general, these components will be taken into consideration: -

Learning Device

This is the primary hardware requirement for mobile collaboration learning, it can be smart phone, tablet, notebook, PDAs or any other device with same characteristics and that has the ability to be connected through wireless technology such as Wi-Fi, CDMA and GSM.

Mobile Learning Application

In order for collaboration to takes place, there should be means to enable users to interact by using their mobile devices. Mobile application is a type of software which will enable users to perform that operation. This software should be made to be available for downloading from different storage such Google Play Store and even from a particular website where the developer decides to put it. The application should offer different options in which user can perform for learning purpose such as discussion, chatting, messaging and others.

Middleware

Middleware refers to the software which simplifies and smooths the data and information exchanges taking place between two application programs that resides within the same environment or across varied hardware and network environment.

The MCL system should be designed to provide a wide support to the mobile application by using different languages, technologies and platform layout. In another side, the middleware construction should support essential frameworks in which the system should be used in a variety types of mobile devices of different manufactures and from varied distributed geographic areas.

4. PROPOSED MCL FRAMEWORK

In order for the system to be successful, it must reflect to what users would expect to get from it, in that way the architecture of the system should be systematized in such away the latest technologies can be supported by that architecture. Additionally, the system should be client-server architecture, so that the request and reply could be easily handled and the overloading could be minimized in mobile device due to continuous running. As shown in Figure 2 below, the proposed architecture composed of mainly five [5] important parts which are Client side (mobile devices), Wireless Access point, Web server, Cloud Storage and User.

Client (Mobile devices)

These are the end users which can use devices such as Smartphone, iPad, notebook, tablets and PDAs which are pre-installed an MCL App in order to access the contents available to the web server. In order to access the learning system, the devices must be connected to the internet through wirelessly technology so that they will easily access the services available in the web server such as discussion, tests, quizzes, forums, downloading materials, viewing materials and so on.

Wireless AP or Cell phone Tower

The aims of wireless access point are to enable the mobile devices to be easily connected to the network. It has the same aims as cell phone tower, in which it aims to simplify the reception of cell phones signals and other wireless communication devices in the cellular network.

Web server

The primary and main task of web server is to store the contents, processing them and reply back the request sent by clients. Usually, the communications between clients and server are taking place by using HTTP (Hypertext Transfer Protocol). In this server, the collaborating learning system will be stored with all contents and services that should be provided to the end users

Cloud Storage

The cloud storage is the one which guarantee the availability of services whenever they are required. The contents from the web server are automatically updated whenever they are uploaded by users. Hence the download and upload operations between web server and cloud storage appears by means of synchronization. If it happens the web server is not available due to some reasons, then the users must communicate directly to the cloud storage for accessing the

contents, and when the web server is back again, the updating of the contents and all process taking places when it was offline will be updated in order to maintains the integrity of the contents between cloud storage and web server.

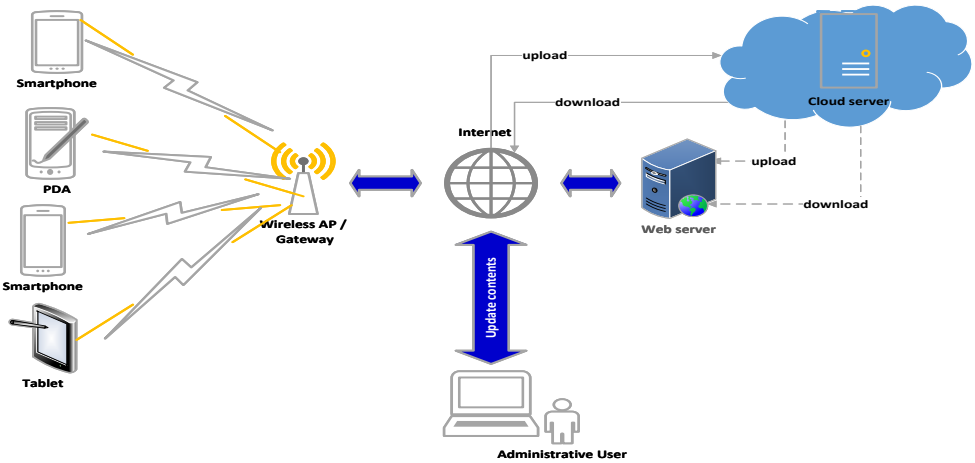

Figure 2 - Proposed framework for MCL

Administrative Users

The administrative user is the one responsible for managing the whole system, from uploading contents, updating some contents, managing users who are going to use the cloud service etc. All of these management activities are taking place via the web server.

5. CONCLUSION AND FUTURE WORK

Cloud computing can support publics and countries in general, it can change education and learning process at al. The whole world of information now can be made to be available by all people using cloud- based learning that is opened and can be reached anytime and anywhere using hand-held devices. In this paper, a Mobile Collaborative Learning, MCL architecture is proposed, the architecture describe in details on how the users will able to collaborate using their mobile devices to access and share information for learning purpose.

In future work, we expect to implement this proposed architecture in which mobile learning android application will be developed for accessing the contents from the cloud storage and make users to easy access the contents stored from the cloud server.

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