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Mobile based Learning through the Cloud Technology

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Abstract: The primary point of this paper is to ponder the idea of M-Learning framework upgrade utilizing Cloud figuring innovations. M-Learning framework can be improved by the new Cloud registering innovations. M-Learning framework is adaptable also; it has a few favorable circumstances than the conventional instructive framework. Moreover, MCC-Mobile Cloud registering is the new innovation which incorporates Mobile Computing and Cloud registering which has many preferences than M-Learning. Capacity space, handling speed and different administrations from the cloud environment are used in MCC to improve the organized cooperative learning process. This paper examines the idea of Mobile Learning and Cloud registering, Cloud engineering furthermore, its advantages. It likewise talks about the advantage of Cloud processing in Mobile Learning. Through Cloud processing and Cloud environment the learner's cell phone can get unbroken transmission signals which upgrades the boundary free correspondence prepare. Mobile Cloud figuring changes the educator's part from addressing to encouraging the learning procedure i.e. understudy focused learning.

Keywords—Cloud computing, MCC (Mobile Cloud Computing), Public Cloud architecture, Cloud environment, student learning process, Mobile-Learning,

1. INTRODUCTION:

M-learning through distributed computing is the new territory to investigate. Because of the fast advancement of distributed computing innovation, M-learning innovation and Information and Correspondence Technology, there is an appeal to improve the current instructive framework to provide food the necessities of the well informed learner. The present classroom training framework has many drawbacks. To improve the current instructive framework numerous new systems like E-Learning, Web learning, and M-Learning are consolidated in the conventional eye to eye instructing and – learning arrangement of instruction. The fast development of correspondence innovation what's more, cell phones can be used bitterly in instructive correspondence. Portable learning will be learning by method for remote innovative gadgets that can be stashed and used. At the point when contrasted with classroom framework the portable learning is one of the most ideal methods for learning. Mobile learning is a proficient and compelling way since Mobile it is taking adapting anyplace and at whatever time. Cell phones roll out potential improvements in the learning framework. Mobile learning gives a helpful learning environment to its clients. M-Learning focal points incorporates is association, versatility, community, connecting with learners, builds premium, without a moment to spare learning and independence [1]. In portable taking in the cloud assumes a crucial part since information sharing is the critical part of this adapting so cloud assumes the liability of information sharing, security and the stack administration amid the pinnacle hours of access without influencing the system band get to.

Mobile learning has a few impediments, for example, limitation of equipment, programming establishment cost, Maintenance cost, be that as it may, and Mobile learning utilizing distributed computing will overcome this impediments [2]. Cloud based portable learning consolidates the distributed computing with portable environment and defeats the deterrents identified with the execution (battery life, stockpiling and transfer speed) environment (heterogeneity, versatility and accessibility) and security (unwavering quality &privacy) [3]. Presently distributed computing is a hot research subject in light of its adaptable element foundation, nature of administrations (QoS) and configurable programming administrations [4]. This paper incorporates Mobile learning in cloud based environment which helps the learners to learn at whatever time and anyplace requiring little to no effort. The Mobile live video learning framework offers a helpful and financially savvy method for making advanced education available to substantial number of understudies [5].

2. LITERATURE REVIEW:

N. Mallikharjuna Rao and et al describe how to influence on cloud computing and influence on this technology to take education to a wider mass of students over the country [6]. Mohamed Osman and et al, discussed mobile learning its key concepts which includes mobility of the technology and mobility of learners and mobility of learning [7]. Mrs. Bhuvana Raghvendra Bajpai focused on the exiting device and technologies appropriate to realize M-Learning as a new stage of progress in D-Learning and E-Learning [8]. Kritike et al, dealt with notion of a mobile device cloud [9]. Minjuan Wang and et al, studied mobile learning and cloud computing to explore how cloud computing changes traditional mobile learning [2]. Hoang T.Dinh and et al, conducted a survey of Mobile Cloud Computing which helps general readers have an overview of definition, architecture and applications of MCC [10]. Meilian Chen and et al introduced the concept and system architecture of cloud computing, then designs a structure of mobile learning system based on cloud computing and analyzes its process and function modules [11]. Mohssen M. Alabbadi described the use of cloud computing in mobile learning and creating M-Learning as a

service (mLaaS) [12]. Pragaladan .R, Leelavathi .M discussed the study of mobile cloud computing and the challenges of mobile cloud computing [13]. Anwar Hosain Masud presented the cloud based M-Learning Architecture for Higher Education [14]. Hossein Movafegh Ghadirli explained the application of cloud computing in mobile intelligent tutoring systems [15].

3. SMART LEARNING:

Smart learning implies learning through portable gadgets, for example, advanced mobile phone, PDA, tablets, net books, and Cushions. Mobile learning gets to be prominent in light of the fact that portable gadgets have some great components like versatility, upgraded and simple to utilize. Presently days the use of Mobile gadgets is expanded since they have compelling specialized devices and they are remote correspondence furthermore they are Mobile. The upside of Mobile procuring is the learners can learn at whatever time and anyplace. By utilizing Mobile learning procedure we can pass substance what's more, administrations to the college understudies through their individual remote cell phones. Mobile inclining has three segments; they are versatility of learners and learning and worker innovation [6].

Uses of M-Learning:

• By method for versatility we can utilize it outside of classroom and utilize it while moving from one place to somewhere else.

• Students can have instructive framework on their Mobile gadgets; they can pass instructive materials between their companions.

• Learners can learn at their home as opposed to going library or perusing focus.

• Not just understudies by utilizing portable taking in, the organizations additionally prepared their mentors.

- Mobile gadgets have low costs than desktop PCs
- Smaller size and light weight than desktop PCs
- It gives area subordinate training by utilizing GPS innovation
- This framework learns while you peruse.
- Understudy can get to study material, sound library, video cuts from anyplace including open place and moving transports and prepares.
- Understudies can associate with instructors after the class hours for their study reason each understudy can learn at their own places.
- Not a settled time to learn, understudies can their adaptable time
- Sparing the cost of learning materials.

4. CLOUD TECHNOLOGY:

Distributed computing is the utilization of processing assets as an administration over a system. We can utilize administrations from the cloud server farms for learning over cell phone even we are in a little town or remote territory. In distributed computing all the figuring procedures are can happen on the web than PCs. Distributed computing gives the administrations, for example, stage, foundation and programming. Cloud computing offers systems, servers, storage, applications and administrations. Distributed computing diminishes the cost adequacy for the usage of the equipment, programming and permit for all. It is an adoptable innovation. This enhances the current training framework quality at a moderate cost. Cloud suppliers are Amazon, Google, Yahoo, Microsoft and so forth.

Usage of Cloud:

- No high end systems needed
- No money for hardware installation.
- No maintenance or update cost for the software.

Cloud Service Models:

Data center layers provide the required hardware and infrastructure for clouds. The cloud services are classified based on a layer concept.

- **Infrastructure as a Service (IAAS)** which provides hardware, storage, servers and network components.
- **Platform as a Service (PAAS)** which offers the environment for software building, testing and developing.
- **Software as a Service (SAAS)** which supports a software distribution with specific requirements.

Cloud Deployment Models:

- **Private Cloud:** Available within the organization for their needs
- **Public Cloud:** Available for the public use-large organization
- **Community Cloud:** Specific community uses-Education, Health, etc.
- **Hybrid Cloud:** Combination of Private, Public and Community Cloud

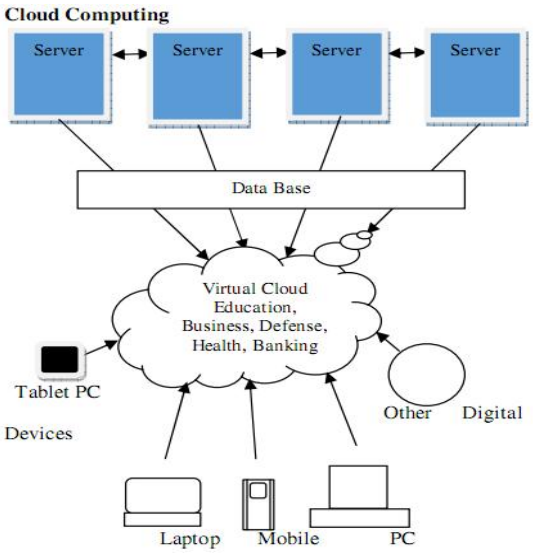

Fig 1. Cloud Computing

5. MOBILE CLOUD:

In mobile cloud computing both data storage and data processing can take place outside of the mobile devices. Here, all the mobile software's are transferred into centralized powerful computing platform in the cloud. It reduces the cost of implementation and development of mobile applications. MCC supports much mobile application such as mobile learning, mobile banking, mobile advertising, mobile entertaining/gaming, mobile health, mobile social networks and mobile enterprise solutions. Mobile cloud learning integrates cloud computing into mobile learning. Mobile cloud has four types; they are public cloud, private cloud, hybrid cloud, community cloud. MCC provides data processing and storage services in clouds. MCC is the combination of mobile web and cloud computing.

Uses of Mobile Cloud:

Low Cost: Users can use variable mobile devices to access learning content without purchasing, installing or updating any software.

Elasticity: Allows for adjustments, depending upon learner's needs.

Ease of use: Rural area students can use services from the cloud data center for learning where mobile network is not available.

Mobile Cloud Architecture:

In mobile cloud computing architecture, mobile devices are connected to the mobile network through base stations (BTS, access point, satellite).Base stations establish and control the connections and interface between the network and mobile device. Mobile user request are transferred from mobile network into cloud via internet. In cloud, cloud controller processes the mobile user request to provide mobile users with the corresponding cloud services. These services are developed with the concept of utility computing, virtualization and service oriented architecture.

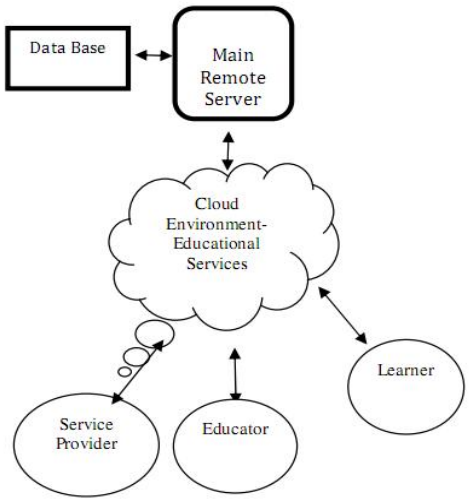

Fig 2. Cloud for Education

6. INTEGRATING CLOUD AND MOBILE FOR LEARNING AS M-LEARNING:

Cell phones needn't bother with a capable arrangement (CPU speed, memory limit) since all the intricate figuring can be prepared in the mists.

Reduced cost: application can keep running on the cloud .so we don't need any memory space and programming in portable gadget and no records to be spared so the cost will be lessened.

Enhanced execution: Executions quicker since all are on cloud, just less projects are in Mobile gadget .so cell phone runs quicker.

No cost for software: All products on cloud are free and can be used on rental basis and no maintenance is also required.

No Software upgrading needed: Applications are web based so upgrades happen on sequent. No compelling reason to pay or download an update with our cell phone.

Multi document formats supported: In distributed computing we have more similarity for opening the records than cell phones.

Reliability of data: distributed computing never misfortune formation, PC slamming in cloud ought not to influence the capacity information since information and applications are put away in a few servers and a few reinforcement duplicates of the formation too accessible.

Common data accessibility: All our reports are right away accessible in cloud we require not to take our records wherever we go.

Multi devices supported: If the client's cell phone changes there will be no trading off in running projects what's more, opening records and it will require no extraordinary equipment or programming to purchase also [5].

Expanded cell phone Battery life: utilizing cloud for handling and putting away result will pare the battery life of cell phones. Hardware: the hardware limitation of mobile devices will prevent the users for some applications but using clouds reduce the cost of implementing these applications.

7. CONCLUSION:

The reconciliation of Mobile learning and Cloud figuring innovation prompts to improve the M-Learning framework. Mobile cloud adapting emphatically impacts the learning process. MCC-Mobile Cloud Computing makes it simpler for understudies to acquire information through their Mobile gadget without stressing over other equipment capacities. Portable learning utilizing distributed computing will enhance the current arrangement of instruction and it will lessen the cost. Utilizing distributed computing as a part of portable learning will wipe out shortcoming of the Mobile handheld gadgets (equipment and programming asset). MCC offers numerous chances to enhance the present M-Learning framework by the method for openness and nature of administration. Later on, cloud registering will turn into the fundamental environment and stage to bolster the improvement of Mobile learning framework through cloud administrations.

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