

Dynamic application in Mobile cloud computing using Advanced Q-MAC

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ABSTRACT- In the present time of innovative progression, portable shrewd gadgets are being utilized widely. Accordingly the prerequisites of these gadgets are additionally developing. With the assistance of Mobile Cloud Computing, these gadgets can discuss straightforwardly with the cloud and perform complex errands which used to be extremely implausible previously. In such a situation, the development of cell phones is the significant research region. The test of keeping up an examination interface between these gadgets and the system is under broad investigation. In this paper we propose a Q-MAC design for asset portion of cell phones. The proposed technique enhances the QoS of the framework and higher proficiency and dependability. Exploratory outcomes demonstrate that the proposed technique performs information offload better than the current strategies and has better outcomes as far as effectiveness and process time.

I. INTRODUCTION

Over the previous decade there's been an appeal for more up to date and quicker system advances online networking at established researchers have comparable requests which leaves numerous new open doors for research. As a result of these areas new advancements are being investigated, for example, dexterous UIs, web administrations and distributed computing. Distributed computing has turned into an extremely alluring option as of late in light of the fact that it offers numerous administrations and has numerous advantages. As a rule distributed computing has been viewed as an accumulation of administrations offered over the Internet to a client or business and that is an exceptionally conventional meaning of distributed

computing. The administrations incorporate virtual machine stockpiling, custom systems, middleware and significantly more. These administrations are offered with the guarantee of security speed unwavering quality and straightforwardness. Straightforwardness ordinarily alludes to the capacity to give cloud administrations without having the client to stress over the hidden subtle elements. That is one of the best qualities of distributed computing [1]. Ordinarily distributed computing is viewed as a gathering of on-request benefits the IDC is a gathering that does market and market investigation in the zone of distributed computing. so here are some fascinating certainties and projections that are made dependent on ongoing investigations. As per the IDC, cloud programming market has achieved 20 2.9 billion dollars in income in 2011 which was a 30% development from the earlier year. IDC expects that cloud programming will develop to sixty seven point three billion dollars by 2016 and a smaller compound yearly development rate of twenty four percent. The IDC predicts that distributed computing will essentially outpace conventional programming item conveyance developing around multiple times quicker.

This illustration is a cloud computing abstract. So here one can see the various mobile and non-mobile devices sort of outside the cloud base ship. Basically they use resources from the cloud devices like your smart phone and .laptop. Then there then there are other devices such as your desktop computer and perhaps a terminal. So this abstract shows some of the resources within the cloud from the different levels within the cloud. Computing was there in the early 90s when the internet was still gaining structure [2]. They would often use a picture of a cloud or a figure of a cloud to specify the internet

and so that picture of the cloud sort of became the face of cloud computing.

Portability is additionally expanding part of innovation. Cell phones, for example, cell phones, tablets, PCs and so forth have turned into a necessary piece of society. It's not simply constrained to one explicit condition. It's certainly turned out to be interlaced in the in the present mechanical world and an expansive piece of this is because of the way that the web keeps these cell phones associated with one another. Because of the movement of remote innovation. These environment these increments and patterns were made conceivable due to the development of fast web and advances in correspondence innovation. Versatile to portable registering being one of the noteworthy ones. So one can close and see that portable innovation is a multi-billion dollar industry that is continually developing consistently actually a portion of the more mainstream cell phones obviously our cell phones and tablets. There's been the development of a SD card that really ports pictures to the web once it's previously it's full.

So from this we can get that a cloud computing offers a cluster of transparent services over the Internet to users and we can also see how mobile computing allows mobile devices such as smartphones and tablets to take advantage of wireless technology. So the demand for new networking technologies won't be dominated by one single form of computing but rather it will be done by combination of both cloud computing and mobile computing. And this technology is termed as mobile cloud computing. The traditional model of local servers and terminals is no longer necessary with mobile cloud computing resources from the cloud can be accessed via the internet using mobile devices and virtualization [3]. Virtualization is basically simulating the server and client environment over the cloud so that eliminates the issue of having a physical location. On the application level software can be developed to take advantage of this cloud infrastructure such applications include even ones that are we already using today such as Microsoft outlook and google maps both of which can be found

on multiple mobile devices such as your phone and Android

Portable distributed computing has numerous advantages however it additionally brings numerous difficulties. For instance there's no standard for portable distributed computing and extra research is expected to understand that a couple of objectives of versatile distributed computing is to diminish the points of confinement of cell phones with the utilization of the cloud. On a comparative scale to conventional utilization of cloud by PCs and terminals. Another imperative objective is to create cell phones that promptly exploit the cloud as opposed to adjusting to the cloud on the web so the possibility of versatility is woven into this specialized intelligent blunder and that can be seen with the expanded generation of advanced mobile phones PDAs and other cell phones such cell phones exploit remote innovation, for example, Wi-Fi and impromptu systems administration. This makes access to the web less demanding and quicker than it has ever been previously.

II. LITERATURE SURVEY

In ENDA [4], the user's movements were predicted to provide a better service and maintain good communication between cloud and user terminal. In MAUI [5], the concept was simple and was not designed to handle complex multi threaded tasks. It was mostly dependent on the availability of fast WiFi. Clone Cloud [6] did not consider the effects of server overload and thus the performance of the system was very limited. In the case were large dynamic data was to be handled, the system would fail.

The Quality of Service and offloading of mobile devices is addressed in the papers [7] [8]. Research methodology have recently managed various responses for the issues of processing power and battery storage time. MAUI [5] and the Clone Cloud [6] are the most leading ones among them. Different procedures identified with portable code offloading took a shot at the resource allocation [4] [9]. Cloudlets [10] [11] present the idea of utilizing close-by exceedingly ingenious PCs, to which

Smartphone associates over remote LAN. This idea spares higher inertness and transmission capacity inconvenience, which would have cost to be associated with the cloud continually.

III. MODELS AND ASSUMPTIONS

The key component of the proposed Q-MAC calculation is the consideration of cloudlets. These cloudlets are a working at each base station to give a superior availability the system. The essential usefulness can be part into two general classifications.

1. Handoff between the cell phones and the system: for the situation where the gadgets are moving starting with one point then onto the next in the system, a persistent system network must be set up for better information exchange.

Fig. 1 Proposed sequence diagram

A. Decision Maker (DM)

The decision maker controls the operation of system, which includes monitoring of the network, access points, clients and their requests, cloudlets and input and environment profiling. The functionality can be subdivided into the following parts:

1) **Clients Queue Handler:**the clients requesting for the network will be managed based on first-come first-serve basis.

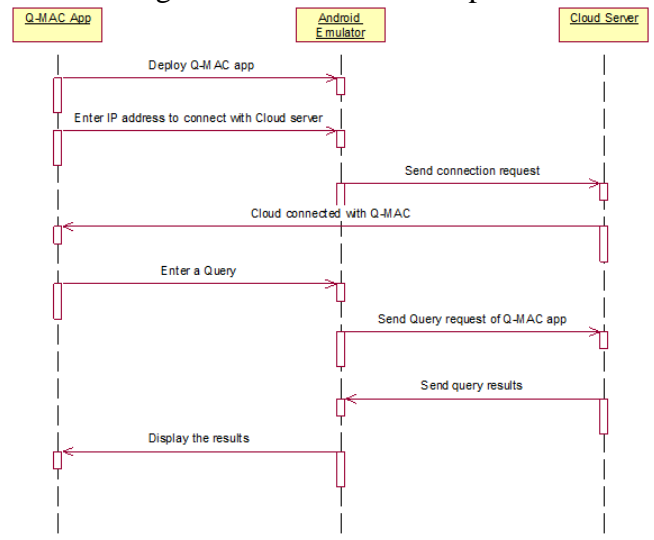
2) **Profiling with dynamic input stream:**the input stream coming from the mobile clients are handled dynamically in the following ways.

- **Application Profiler (ApP):**stores information of the application.

IV. PROPOSED DATA FLOW DIAGRAM

Fundamentally, while endeavoring to make a product, the most vital piece of your product is information. Since clients will put loads of information into the product, one needs to see how the information will go inside your application. Generally ER graphs are made for database outline possibly class charts for understanding items.

2. High speed information exchange with power thought: the information exchanging between the cloud and gadgets ought to light snappy. The power utilization ought to be least amid this procedure.



- **Users Mobility Analyzing Profiler (UMAP):**based on the movement of the users in the mobile network, the users profile is maintained for processing.
- **Network Profiler (NP):**this part analyses the network properties like bandwidth, signal strength etc.

3) **Network AP Monitoring Unit:** the network properties and functionalities like the cloudlet requests, the computational operations. This modules works n synchronization with the DM for the smooth operation of the network.

B. Network AP Destination and Status

The status of the cloudlets, their capacity to handle the data and the access points are managed in this par

However, DFDs help in envisioning the information development. Furthermore, they additionally help you in envisioning what the major useful modules. So as it were, information and usefulness both can be arranged, both can be planned utilizing information stream graphs.

So the major components of DFDs are:

- 1) External Entity
- 2) Processes

- 3) Data Flows
- 4) Data Stores

So examining about general images, more often than not, substances are meant utilizing square shapes. Procedures are indicated utilizing air pockets or circles information streams are signified by bolts. This element here varies essentially from the substance in your ER outline. So outside substance could be a man It could be an equipment or it could

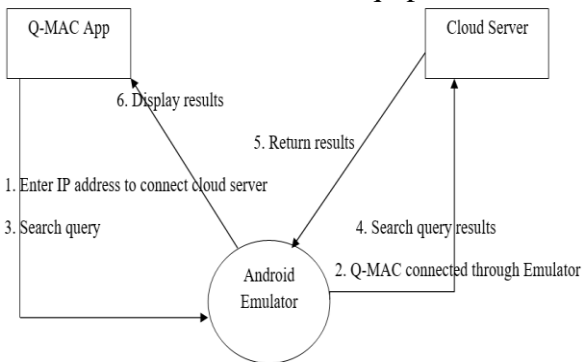


Fig. 2 Data flow of proposed model

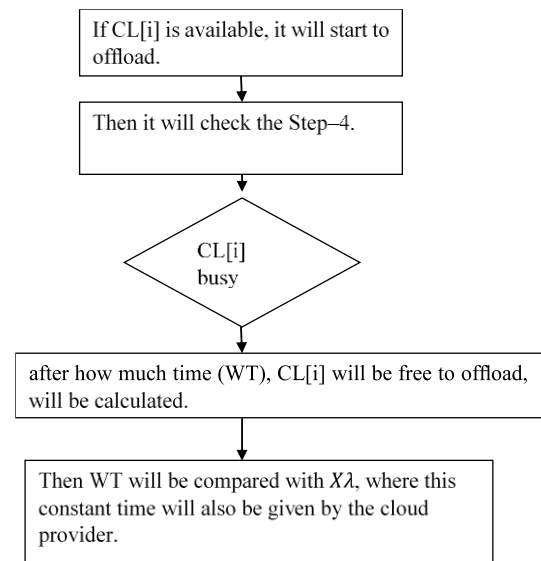
Step-1: in the first step, a mobile device tries to access a cloud with its device specification and location properties.

Step-2: the system then checks if there are any available networks or cloudlets in the area where the user is present. If there are no available cloudlets in the vicinity, the data will be offloaded and the tasks will be assigned to the terminals.

- Delay
- Bandwidth
- Cloudlet's Distance from user and

will decide the cloudlet to be chosen.
Step-3: Is CL[i] busy or free to offload.

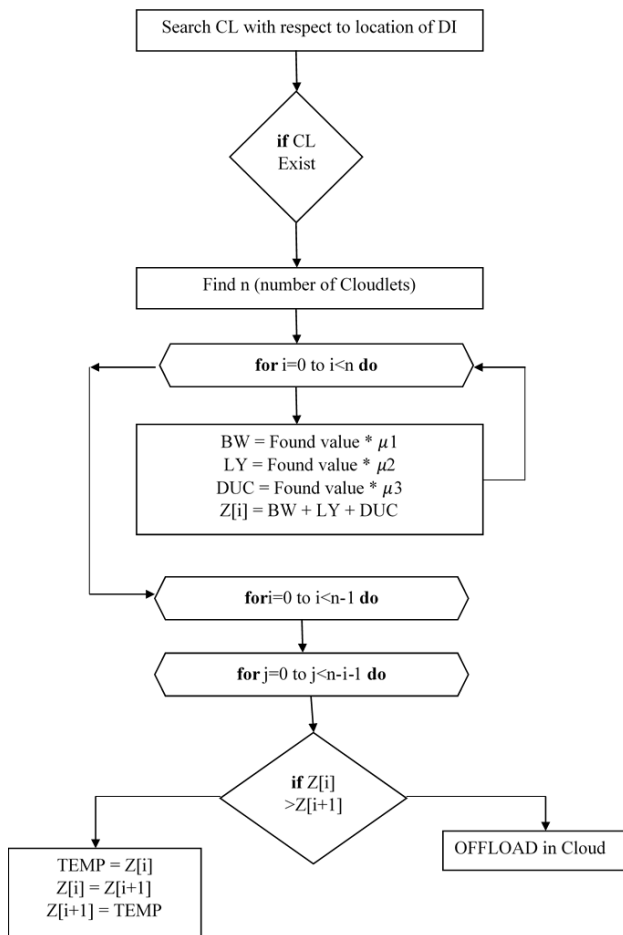
be another framework or a program which either gives information to your product or expands information from your product. So any product like individual, equipment or another product who either devours information from your product or gives information to your product are qualified as External Entities. Since they will give information and additionally devour the information, yet they are not part of the framework.



Step-4: Check if the user is still in the same cloudlet.

INPUT: Procedure 1: MECL

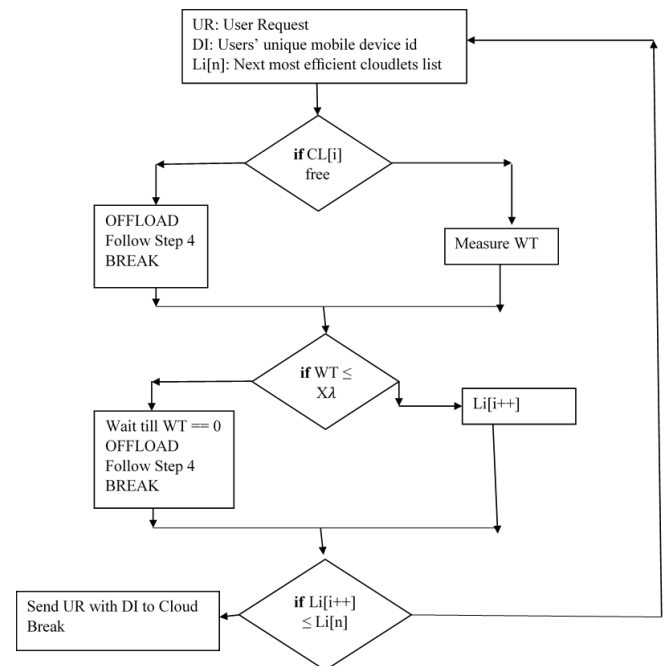
BW: Bandwidth, LY: Latency, DUC: Distance between user and cloudlet, DI: Users' unique mobile device id, μ_1 : Value of bandwidth given by cloud provider, μ_2 : Value of latency given by cloud provider, μ_3 : Value of DUC given by cloud provider



OUTPUT:check the availability of cloudlets at user's location.

The steps 1 to 4 are applicable to consistent networks. The cloud performs the data offloading and other functions if the network inconsistencies arises.

Procedure 2: Main Control System in Cloudlet



V. EXPERIMENTAL ANALYSIS

The experimental results are implemented under the following considerations:

Mobility speeds - Ranging from 0m/sec to 10m/sec.

AP's count – 6

Mobile devices – 5

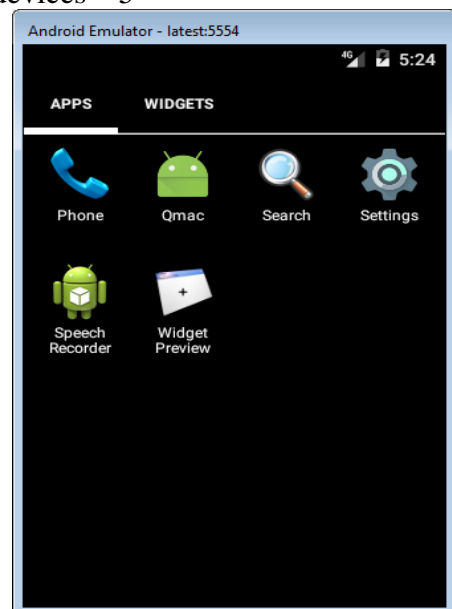


Fig. 3 Deployment of proposed system in android mobile

For irregular rapid developments, it brings about the high disappointment rate of the submitted and doled out assignments to offload under any cloudlet for

every one of the three systems. To the opposite, proposed framework utilizes cloudlets as middle of the road servers to guarantee ideal asset portion method with its brilliant undertaking execution instrument by following just users' unique cell phone ID. The normal execution time of flooding is expanded with the versatility speed. This execution time incorporates the information transmission, calculation, and holding up delays. As the client moves quicker, the system quality changes so as often as possible that information exchange time increments strongly.



(a)



(b)

Fig. 4 screens of entering an IP address and search query which connected to server

Our portability mindful errand execution framework has indicated lessened number of disappointments and re transmissions and in addition decreased holding up time and in this manner it has accomplished better defer execution compared to ThinkAIR, ENDA, and Music. In figure 4, we demonstrated that the screens of IP address of a laptop or computer on which the cloud server is running. Then after the cloud sends all the documents which contains those queries with document name and similarity score in comma separated. The average execution time has shown in figure 5 in which the proposed system with cache performed in reduced time.

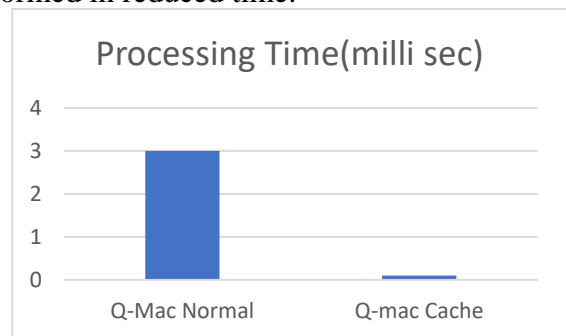


Fig. 5 average execution time Q-Mac

VI. CONCLUSION

The efficient algorithm of Q-MAC proposed in this paper supported with versatile information offloading wieh working with cloudlets. In our framework engineering, each cloud has an arrangement of cloudlets. The client positions and speed are altogether considered while ascertaining the outcomes and different parameters. Our future work will be on conveying the offloading assignment among various VMs, in cloudlets. We likewise expect to develop investigating the exchange offs among expenses and advantages in certifiable situation.

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