# Improving the Service Quality with Location Based Prioritization of Services for Mobile Users

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*Abstract -* **Wireless networks allows a more flexible model of communication than traditional networks since the user is not limited to a fixed physical location. Most of the users engaged in the mobile environment requires fast response for the service they request .But practically it's not so, when more user requests services, base station might take sometime to response. Services will not be prioritized so user might have to wait more time to get response from base station. We proposed a system which prioritizes the services based on the location and fetches services proactively from the base station based upon the request from the particular mobile user which is predictive user behaviour. Active mobile user will be under consideration using Alpha beta pruning algorithm. This algorithm will prune inactive mobile user though they located in a same location. When these active user moves to a new location, location identifier identifies the particular location they are currently engaged in. Priority will be given to services depending upon the data management strategies. Prioritization of services will improve the responsiveness of the base station, reduce the response time and maximise the cache utilisation .The wastage of considerable resources will be reduced.**

*Keywords – Mobile User, Alpha beta pruning algorithm, Location priority*

## I. INTRODUCTION

Wireless users will demand the same reliable service as of today's wired line telecommunications. As users travel, they may move from one location to another, necessitating a handoff and the selection of a new services . Each base-station transition is called handoff. A handoff takes place when the base station in one location transfers control for a user's requested service to a base station in another location while the user is engaged in travelling .In the following Sections will explains the proposed system. Location-only activity is a sequence of locations that are repeatedly visited**.** For example, a shopping activity may consist of a location-only activity from home to the mall. Service-only activity is a sequence of services that are repeatedly invoked. For example, accessing email account. Location-service activity is a sequence of location- service pairs that appear repeatedly [1][5].

For example, a hybrid set of location (window-shopping) and service (purchasing) activities. Mobile users invoke services one after another when travelling. Service patterns emerge if a sequence of services is repeatedly invoked by the same or different user. Some services are offered only at specific locations such as gas stations, restaurants, movie theatres. In such cases, locations and service invocations always come in pairs. Based on the analysis, we can characterize the basic user behavior patterns. The objective of this work is to improve the cache utilization and to reduce the response time. An emulator is being proposed to be used as a virtual mobile station. The proposed system is used to prioritize the services based up on the location and provide the service to the users working in the mobile environment[9].

## II. PROBLEM DEFINITION

Reliable service access has become an essential part in modern society. A popular means of accessing the service is through mobile phones. The mobile users will request a service and wait for response from particular mobile station. However, the services are proactively fetched from the base station and given to the user. Also, responsiveness is not provided to the user as much considered. In order to achieve this task it is required that the services must be prioritized based up on the location. However, it is a challenging task particularly if we consider the responsiveness and cache utilization, the wastage of resources can be reduced. Previous technologists developed a system that only provides a proactive data management for mobile users. they have not developed any methods for prioritizing the services to the improve the responsiveness in mobile environments[8][13].

## III. MOBILE FRAMEWORK

In this section, we introduce the proposed Mobile Framework which consists of components as shown in Figure 1.Wireless networks allows a more flexible model of communication than traditional networks since the user is not limited to a fixed physical location. Most of the users engaged in the mobile environment requires fast response for the service they request [2][7]. Based on the location, services are prioritized and proactively fetched into the base station up on the request from the particular mobile user using predictive user behaviour.

The Proposed framework uses alpha beta pruning which is a search algorithm which seeks to reduce the number of nodes that are evaluated by the mini max algorithm .And also it stops completely evaluating a move when at least one possibility has been found that proves the move to be worse than a previously examined move. Such moves need not be evaluated further. Before the user request a service , location identifier identifies the particular location they are currently engaged in . Prioritized services will be provided to user which reduces the response time. Prioritization of services will improve the responsiveness of the services, reduce the response time and minimizes the cache utilisation.

### A. Emulator

The main purpose of the Emulator is to act as a substitute for mobile station. A number of mobile stations are connected to the base station .The services are retrieved proactively from the master station to the base station when the user moves to particular location .The proactively fetched services will be prioritized.
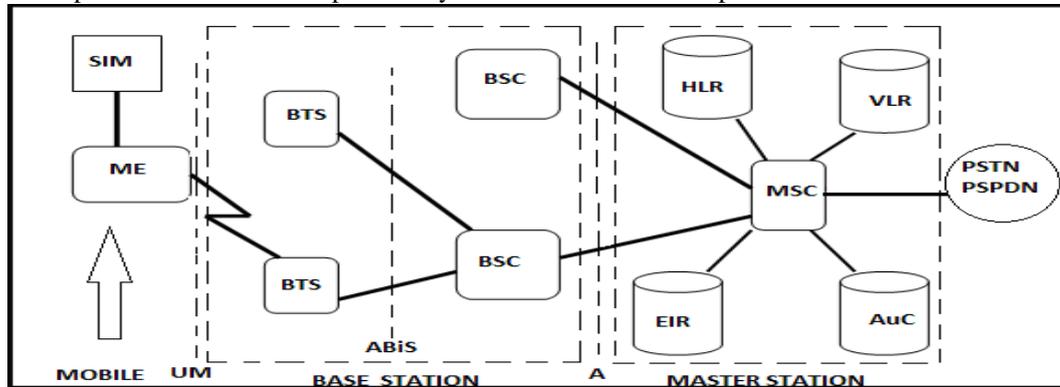


Fig.1 Mobile Framework Architecture

## IV. THE BASIC IDEA OF THIS WORK.

In this project, our work aims to build a model based on prioritization technique. We have selected this approach for several reasons. First, instead of specification of the whole steps of the scenario, the services based on the location accessed by the group of users is provided in the learning phase. This provides a flexible approach particularly if the next user requests the same service. Second, even if the user requests the different service, the particular service will also be listed by prioritization technique. Third, the model is expandable to incorporate enhanced version of the mobile emulator for faster accessibility. In addition, we have adopted alpha-beta pruning algorithm to develop our model. The system in these projects is evaluated using data management strategies LRU and pre fetching. The focus in this project will be providing fast and reliable services to the user. We have improved the cache utilization and responsiveness by implementing Alpha beta pruning algorithm. The current system should following the phases like us,

### A. Service Requesting Mobile Emulator.

Server console is the master panel that will be deployed in the base station. It is the main module that performs all the major operations defined by the system. Some of the aspects of the server console are to add, remove, modify and view the information locations, services and Administrators. It is a proxy that sits between the server and the base station. When a mobile is device is found at a location, it will predict the service that the user is going to access and pre-caches it for fast access to the user illustrated in Figure 2. And there by reducing the response time and maximizing cache utilization[4].

By doing so, the QoS is also improved. Because is the user gets faster input and if more numbly of users are able to connect and obtain the data, then there is a major improvement in quality of the service. This module will consist of forms to add, remove, modify and view the basic configuration of the system. The system pre-caches the services based on the location and movement of the user[12].

### B. Cached Service Viewer.

A mobile station emulator is a module that emulates a mobile device. It is a virtual mobile phone that emulates the actual mobile phone in the real world. It is coded using C#. The purpose of mobile emulator is to test the working of the system and verify if right services are pre-cached. It will interact with the server console and thereby add the signal it to fetch the data proactively [15]. To system to proactively fetch the data, it should be able to determine the location of the emulator. Herein, the emulator will provide the server console with its location. Based on the location, the services will be pre-cached and sent to the user.

### C. Transaction Log for Error Recovery.

Error recovery log is a log that will register all the transactions and the current state of the system. If any system crash occurs to a high number of requests or any critical error, the error recovery log will be analyzed by a log analyzer and will throw us a possible error that might have crashed the system. By diagnosing the error, we will be able to find where the fault has occurred if any and we will be able to rectify the occurrence of the error next time onwards [1][6].
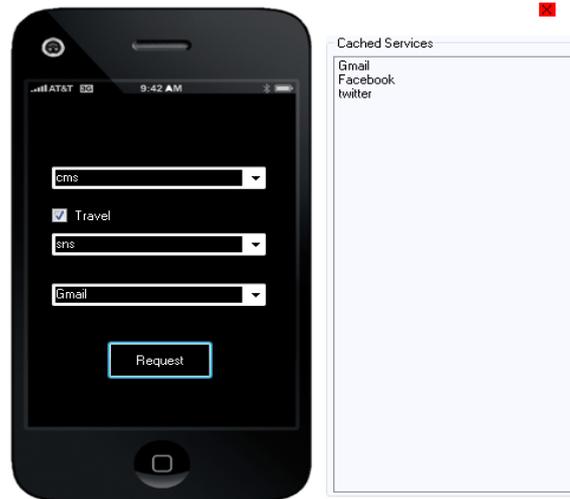
Fig. 2 Location Based Pre cache Mobile Emulator

*D.Database Design*

In this project we are using MySQL to create database that stores the input alerts and its statuses.i.e, the consequences. The database table is shown below.

TABLE I : DATABASE DESIGN

| SNO | SEQUENCE | STATUS |
|-----|----------|--------|
| 1. | Service Requesting | INITIATING |
| 2. | Balance Checking | ENQUIRING |
| 3. | Net Validity Period | CHECKING |
| 4. | Service Provider | SERVICE-MAPPING |
| 5. | Prioritize based on location | PRIORITIZING |

*E.Input Design*

Input design is the part of overall system design which requires very careful attention. Often the collection of input data is the most expensive part of the system, in terms of both the equipment used and the number of people involved. Input design is used to transform the information domain model of analysis phase into the data structures. The data structure is designed to hold the data. These data structures play an important role in software implementation. It is the point of most contact for the users with the computer system; and it is prone to error. If data going into the system are incorrect, then the processing and output will magnify these errors [11].

Input design is the very important part in the project and should be concentrated well as it is prone to error. In order to get the meaningful output and to achieve good accuracy the input should be acceptable and understandable by the user. The goal of designing input data is to make data entry easy, logical and free from errors as possible. The inputs, which are given by the user, will perform the processes, which will be carried out. So a detailed design as to what are the inputs required for various process are to be analyzed and care has to be taken to see that the entered details are correct. Inaccurate inputs are the most common cause of errors in data processing. The following features have been incorporated to avoid incorrect inputs [14].

*F. Output Design*

Outputs from computer systems are primarily required to communicate the results of processing to users. Efficient, intelligible output design provides help in decision making. They also provide a permanent hard copy of these results for the later consultation [15].

## V. CONCLUSION

We have proposed a mobile framework to attain fast internet access in real time. In this project we have developed a mobile emulator of the online component which is the virtual mobile station. The proposed approach is mainly based on phenomena of "request and response" which is basically used in mobile environments. A method have been developed to overcome the limitation of current systems: Prioritizing services based on locations. It has been demonstrated that this mechanism improves the cache utilization and reduces the response time. False positives have been reduced comparing with other approaches using prioritization. For future work, dynamic tree structure and mining techniques will be developed to solve the cold start problem owing to the need for an initial behavior log database. Furthermore ,enhanced version of emulator can be developed for fast internet access based upon services which are prioritized .We are working on a such that the problem can be effectively addressed. There are still few more challenges will also be addressed such as to explore the full potential of activity-based mobile computing and adaptation techniques.

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