GPRS data banking for prepaid plan users

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Abstract - This paper is intended to propose a service for pre-paid users to enhance their GPRS data package renew experience. This service will introduce a platform where user can save specified amount of GRPS data predefined by user itself. User can re-use the saved GPRS data whenever they require but in specified limit of time. Time limit will depend on GSM operator.

Index Terms- GSM, Operator, GRPS data and SMS.

I. INTRODUCTION

21 century is awarded with online connectivity which depends 99% on use and access of internet services. Connecting to people could be another term. Online connectivity has various different mediums (Facebook, Gmail or Business related work etc). Certainly, online connectivity requires availability of GPRS data all the time in user account.

GSM users can be broadly differentiated into 2 categories:

1. Postpaid plan users
2. Prepaid plan users

Today online connectivity from user point of view is suffering from one big problem i.e. *all the time availability of GPRS data in user account.*

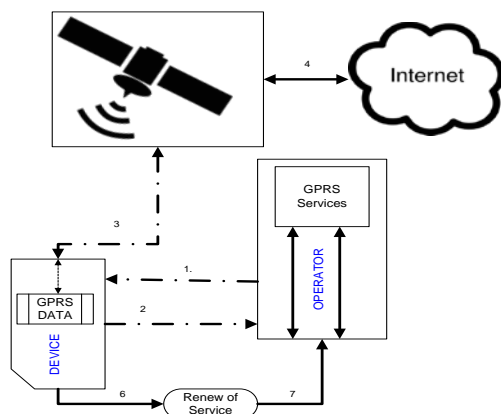What if GRPS data has exhausted and it is very urgent to access the internet?

Fig. 1: GPRS data service to user.

Although there are options available for easily renewing the data package but somehow all options are dependent on third party. Current available services for prepaid GSM users are:

1. Recharge GPRS data via web/android application accessing web.
2. Recharge the GPRS data through vendor shops.

Some android applications or smart phones are available that inform user about usage of GPRS data. Still they can only raise a flag when user's GRPS data is about to exhaust. It certainly does not solve the actual problem for prepaid user i.e. "Renew of GRPS data without web or vendor shop access".

Current available solutions are suffering from major two limitations:

1. User dependency on other sources
2. Time consuming

II. PROPOSED SOLUTION

GPRS Service: General packet radio service (GPRS) is a packet oriented mobile data service on the 2G and 3G cellular communication. Current pre-paid users are dependent either on kiosk or internet access to renew their GPRS data package on expiry.

Research elaboration for the proposed solution: A service will be provided by GSM operators to their prepaid plan users. This service will allow users to save a specific amount of GPRS data reserved for future use. The concept is somehow related to Bank's saving account where money is saved for future use.

Prepaid plan users can reuse their previously saved GPRS data once GPRS data in their account is expired and further usage is needed.

The framework of proposed service will require a server side application component performing following tasks:

1. Manage the account for users availing this service.
2. Once user raise a request for recharge of GRPS data the server application will prompt user to enter the amount of data to be reserved for future use.
3. Once user accepts the server response and inputs the amount to be reserved; application will deduct the requested size from total GPRS data size.
4. Rest amount of GPRS data will be credited to user account for current use. This information will be transparently shared with user.
5. A specific time band will be allocated to user for availing the reserved GPRS data back.

6. Application will keep sending information to the user about the expiration of this reserved data.
7. Application will hold the authority to expire the reserved GPRS data in case user does not avail GPRS data in given time duration.
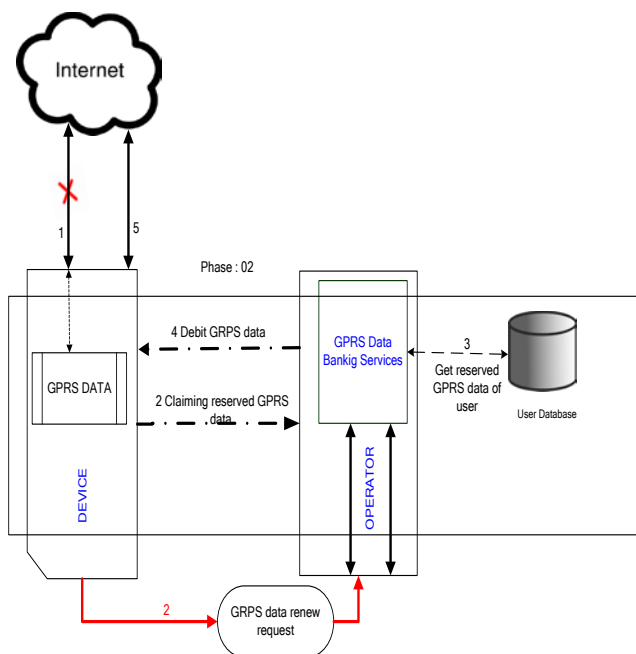
III. WORK FLOW OF SERVICE

Proposed service will work in three phases:

Phase 1: User acceptance: In this phase prepaid user accept the service request from operator and reserve a specific amount of GPRS data.
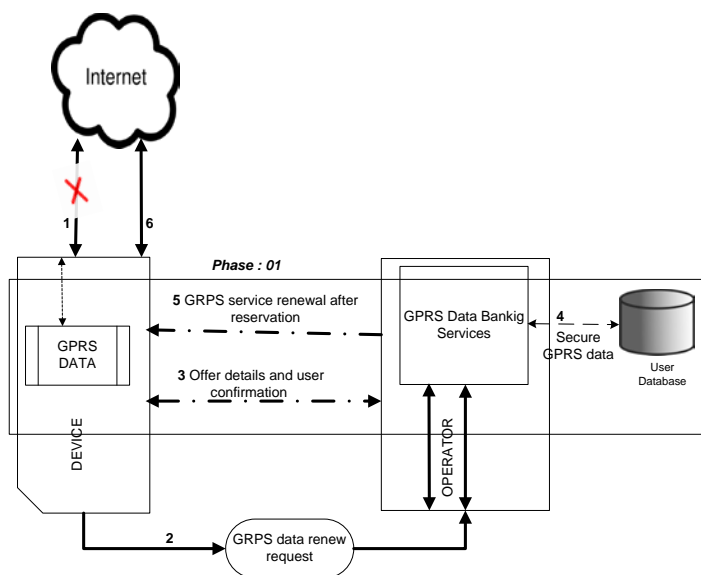
Phase 2: Claiming reserved GPRS data: In this phase user will send request operator, to avail the reserved GPRS data.

Phase 3: Sending reminders: In this phase user is informed about,
1. Request to claim reserved GPRS data before expiration
2. Expiration notification of reserved GPRS data; In case not used in specified time duration

GSM operators can define terms and conditions on claim/expiration of reserved GPRS data as per their policy and plans.

IV. BENEFITS TO USERS & OPERATORS

This service will surely benefit GSM operators and prepaid plan mutually, in different ways.

Following are the identified benefits to users:

1. Control on net usage.
2. Availability of GRPS data in emergency case.
3. Fast and easy way to enable the service.
4. No dependency. On other sources
5. This service can help user in critical time also. At some point of time users GPRS data has exhausted and for user it is very urgent to access the mail but user in such a geographical area where it is very hard to reach any kiosk and internet access is not possible.
6. Refilling the GPRS data seems impossible but by using this service user will claim the operator (via SMS) for reserved GPRS data. Server will receive the request and what so ever amount of data were saved earlier by user will be credited to account instantly.
7. By using this service user will get GPRS data in very short duration of time.

Following are identified benefits for the Operators with the implementation of this proposal:

1. A revenue garneting service for GSM operators. A specific amount of service charge will be deducted as a fee for providing this service to users.
2. If service is not used by user in specified time limit then it will be expired. Cost was charged for full GPRS data but consumption was less which makes more profit.
3. More customer satisfaction achieved.

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