



## **PayMobile Voucher Management**

Plan, derisk and perform your prepaid IN and convergent billing migration projects with minimum service impact

**white**  
PAPER

October 2010

# Table of Contents

- 1 EXECUTIVE SUMMARY.....3**
- 1.1 PURPOSE OF DOCUMENT.....3
- 1.2 PAYMOBILE RECHARGE BENEFITS FOR OPERATORS DURING IN MIGRATION.....3
- 1.2.1 *Smooth migration* .....3
- 1.2.2 *Proven experience with all leading IN and Billing vendors* .....7
- 2 PAYMOBILE VOUCHER MANAGEMENT .....8**
- 2.1 A CONVERGENT RECHARGING SERVICE.....8
- 2.2 VENDOR-AGNOSTIC .....8
- 2.3 FIRST-CLASS SECURITY FOR VOUCHER GENERATION .....8
- 2.4 UNIQUE 2-WAY RECHARGING ARCHITECTURE .....9
- 2.5 A FLEXIBLE SEGMENTATION TOOLBOX.....9
- 2.6 EASY, USER-FRIENDLY ADMINISTRATION .....9
- 2.7 MULTIPLE RECHARGE CHANNELS.....9
- 2.8 TYPES OF RECHARGES AND RECHARGE SCENARIOS .....9
- 2.8.1 *Recharge types* .....9
- 2.8.2 *Recharge scenarios* .....10
- 2.9 MULTIPLE BALANCES RECHARGE .....10
- 2.10 PROMOTIONAL RECHARGE SERVICES .....10
- 2.11 SCALABILITY.....10
- 2.12 RELIABILITY AND HIGH-AVAILABILITY.....10
- 2.13 COMPREHENSIVE CUSTOMER CARE .....10
- 2.14 A COMPLETE RANGE OF SERVICES.....10
- 3 CONCLUSION.....12**

# 1 Executive Summary

## 1.1 Purpose of Document

An IN or Convergent Billing migration is a critical event for a Mobile Network Operator, as it involves a platform directly responsible for charging, revenues generation and collection. The success of this event can strengthen the operator's position in its market; its failure can have significant consequences in terms of revenue leakage, subscriber churn and dissatisfaction.

eServGlobal has extensive experience in this field and has provided assistance to multiple operators and IN/Billing vendors during this type of migration. As an external party to both IN and Billing vendors, eServGlobal is a neutral and open third-party between incumbents and challengers, and thus can easily discuss and interwork with old and new vendors. The smooth migration strategy proposed by eServGlobal minimizes the impact and risks to the operator's network associated with migration.

This document will detail the key benefits of the PayMobile recharge platform and will demonstrate how operators can take advantage of eServGlobal's experience to perform an IN/Billing voucher migration with almost zero impact on both the service to the subscribers and the revenue to the operator.

## 1.2 Paymobile Recharge benefits for operators during IN migration

A critical stage of each IN migration is the migration of vouchers. Whereas subscribers can be gradually migrated based on routing updates in the network (usually at the HLR level), a similar mechanism is not easy to use for vouchers. The IN cannot know on which voucher management system a voucher is stored, because it only receives a voucher PIN as input during a recharge. Consequently, all vouchers are generally migrated simultaneously in a one-shot migration.

This kind of voucher migration generally implies that:

1. Either the old IN or billing needs to be able to interwork with the new voucher management system.
2. Or the new IN or billing needs to be able to interwork with the old voucher management system.

This is problematic as both the new and the old voucher management systems usually use proprietary interfaces. Consequently interfacing requires substantial development on the IN's.

The following outlines the main steps of an IN migration. This strategy could be adapted to other cases, e.g.: in the case of an operator adding another IN rather than switching to a new IN platform.

### 1.2.1 Smooth migration

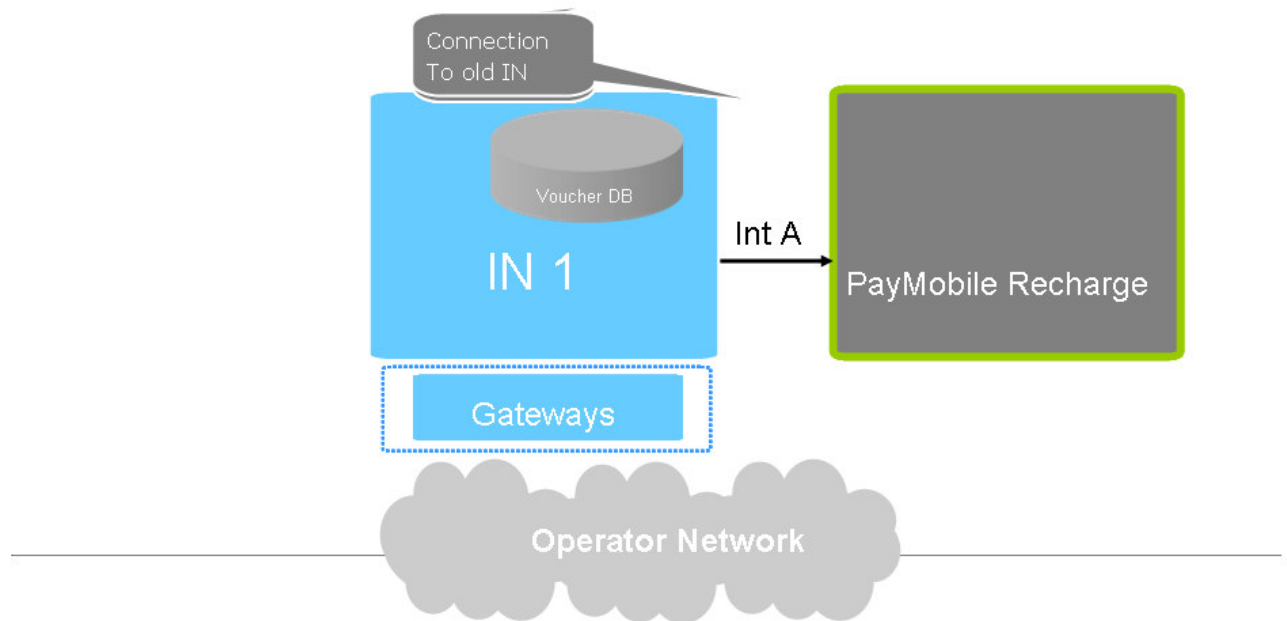
With a focus on ensuring that the IN migration is transparent to the customer, eServGlobal proposes a staged migration:

1. Connect PayMobile to old IN platform (still in production)
2. Perform a complete voucher migration from old IN to PayMobile
3. Connect PayMobile to new IN (still under testing, before go live) and perform subscriber migration from old IN to new IN
4. Finalize the migration

Please note, if PayMobile is already the incumbent voucher platform, then steps 1 & 2 are unnecessary.

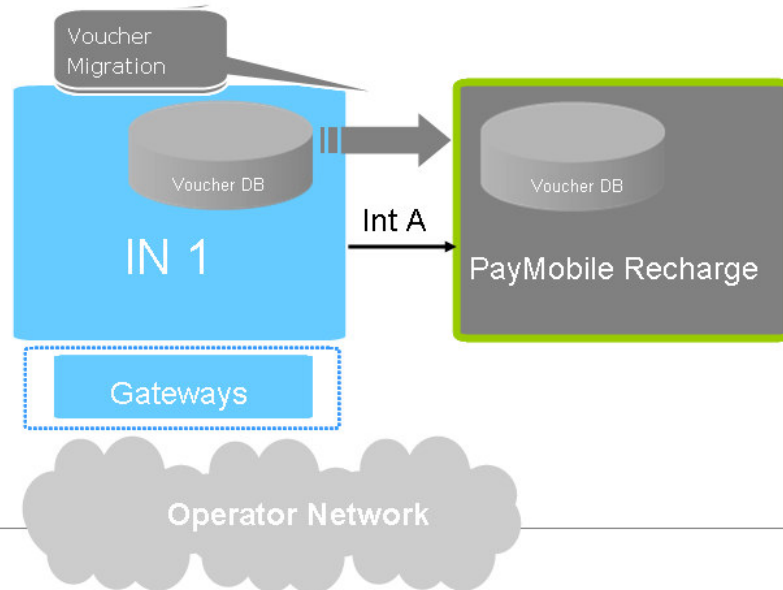
Also, depending on the context for each operator, and mainly to the providers for IN and voucher management, the steps can be adjusted and aligned to suit operator requirements.

### 1.2.1.1 Phase 1: PayMobile Integration with old IN



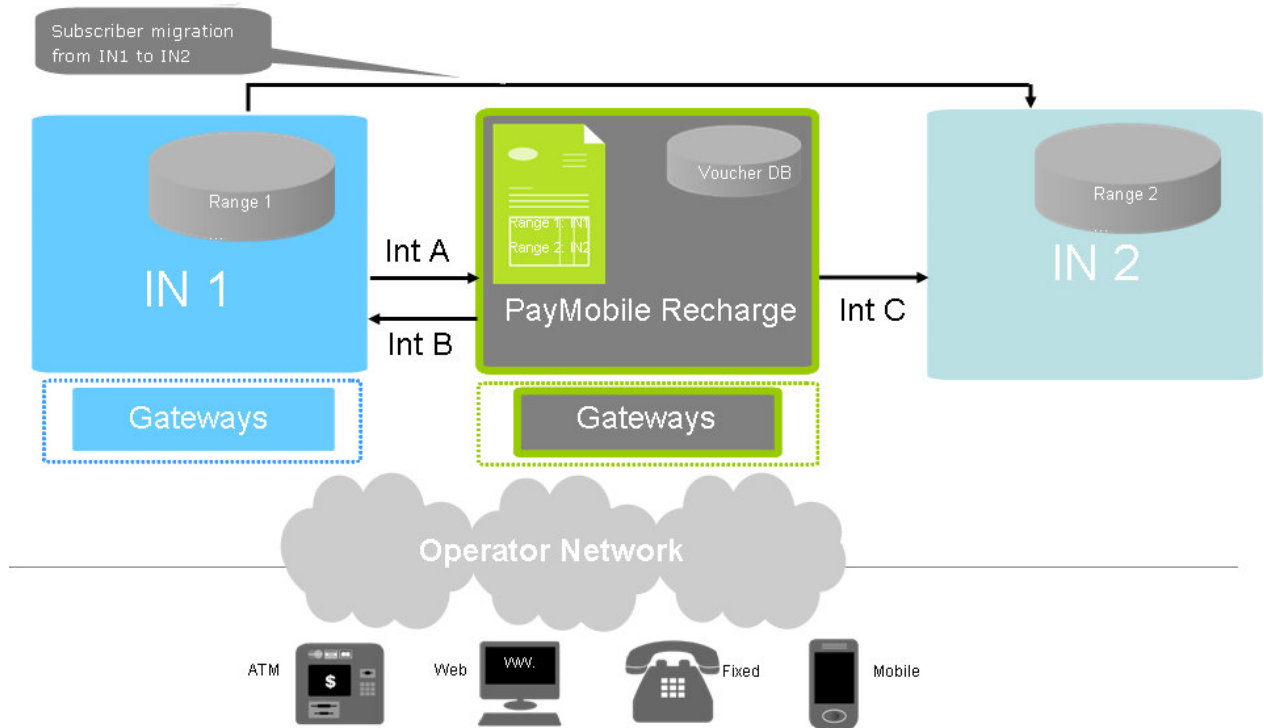
- ✓ PayMobile Recharge platform is connected to existing IN platforms (IN 1) (necessary only if PayMobile is not already the incumbent recharging system). This diagram also proposes a non intrusive way to maintain connection to the old IN during this first step. Service logic is kept on the old IN and uses the old IN gateways.
- ✓ Two main interfaces types are supported with IN:
  - Either a voucher validation interface type (Int A). In this case the recharge logic is on the IN, which uses the interface to get voucher information and scratch vouchers. In this kind of configuration the PayMobile platform will only act as the server, the IN is the client.
  - Or a recharge interface (Int B or Int C as mentioned in Phase 3). In this case the service logic is on the PayMobile platform which will act as the client, the IN is the server in this case.
- ✓ IN interface could be based on standard protocols or vendor specific interfaces (please refer to paragraph 1.2.2).

### 1.2.1.2 Phase 2: Voucher migration to PayMobile



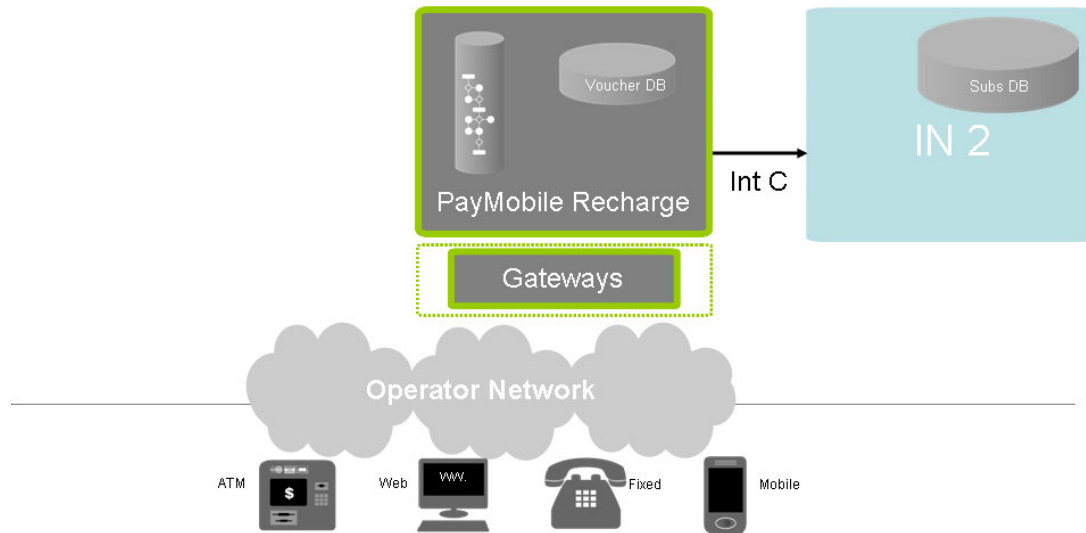
- ✓ eServGlobal has performed many migrations from many different vendor source systems.
- ✓ PayMobile allows for different kinds of migrations depending on the operator's situation (number of vouchers, allowed outage time,...), for example:
  - All-at-once migration in which all vouchers are migrated at the same time (easier option, but outage time can be important for big systems)
  - Delta migrations in which the vouchers are migrated in several phases, resulting in minimal outage time even for the biggest systems
- ✓ After the voucher migration all recharge traffic will be routed from the old IN to PayMobile.

1.2.1.3 Phase 3: Connection to new IN and subscriber migration



- ✓ The first step is to connect the new IN (IN 2) to the PayMobile Recharge platform (Int C)
- ✓ At the beginning of this step, all subscribers are on the old IN and all recharges are already routed to PayMobile
- ✓ Recharging for the subscribers remains unchanged while they are still on IN 1
- ✓ During the migration subscriber ranges are migrated from the old IN (IN 1) to the new IN (IN 2)
- ✓ For each subscriber range migrated from old IN (IN 1) to new IN (IN 2), the routing will be changed in PayMobile. This allows PayMobile to know on which IN the subscriber is stored ensuring recharge to the right wallet for every top-up operation. The PayMobile platform provides the recharge routing function during the whole migration
- ✓ eServGlobal gateways could be integrated (USSD, SMS, Voice...). If required, it is also possible to integrate into third party gateways.

### 1.2.1.4 Phase 4: Migration finalization



- ✓ Both IN platforms can co-exist for as long as required, PayMobile will route the recharge requests to the correct IN.
- ✓ Once all the subscribers are migrated into IN 2, there is no need to perform recharge of wallets on the old IN platform and it can be phased out of the network.

### 1.2.2 Proven experience with all leading IN and Billing vendors

eServGlobal offers industry leading experience in interfacing to many leading IN and billing vendors in the industry. Due to PayMobile’s flexible and open architecture, it is easy to add new interfaces for new IN or billing vendors. The following interfaces have already been, or are in the process of being deployed:

- ✓ SCP-ONLINE interface to the NSN IN systems
- ✓ Payment Plug-In (“PPI”) interface to the NSN IN systems
- ✓ WebServices interface to newer Huawei IN systems
- ✓ Service Management Interface (“SMOI”) to older Huawei IN systems
- ✓ Interface to ZTE IN system
- ✓ User Communication Interface Protocol (“UCIP”) to Ericsson Charging Systems
- ✓ Interface to Ericsson LHS BSCS Billing System
- ✓ Interface to Oracle ChargingMax Prepaid System
- ✓ Interface to INTEC Singl.eView Billing System
- ✓ Interface to Convergys Billing System
- ✓ Interface to ITS TABS Billing System

## 2 PayMobile Voucher Management

With 32 recharge solutions deployed worldwide, and field-proven interoperability with all leading IN and Billing vendors, eServGlobal has a strategic view of today's changing recharge distribution model.

Many operators have already built partnerships with banks for ATM recharging. eServGlobal has already deployed recharge solutions through ATMs in Morocco and Indonesia, interfacing its recharge solution to the banking networks.

PayMobile also has embedded electronic recharge capabilities, allowing subscribers to use electronic vouchers as well as electronic recharge through the operators' agents. This type of solution is already deployed at 12 eServGlobal customer sites.

### 2.1 A convergent recharging service

- Voucher Generation options:
  - ✓ Physical voucher (printed on scratch card)
  - ✓ Electronic voucher (for electronic distribution)
    - Voucher on demand (with PayMobile Electronic Recharge), any amount
    - e-Voucher (with PayMobile Electronic Recharge), pre-provisioned vouchers
- Multi HRN
  - ✓ Only for single use, cumulative, random bonus
- Bill Payment
  - ✓ For postpaid subscribers (with PayMobile Electronic Recharge or Mobile Payment)

### 2.2 Vendor-agnostic

PayMobile is IN and Billing Vendors Agnostic and can interwork with any existing/upcoming IN Vendor and/or Billing System. We have references with the following Vendors:



### 2.3 First-class security for voucher generation

PayMobile Voucher Management uses an unbreakable and highly secure cipher PIN generation called CB10, 8-22 voucher PIN encryption to preserve revenue and decrease exposure to fraud and loss. The solution also offers DES encryption for print-files.

This strong security is often overlooked by main IN and Billing vendors and can generate alarming security and fraud issues. eServGlobal PayMobile offers the best-in-class response to address this increasing challenge.

## 2.4 Unique 2-way recharging architecture

PayMobile Voucher Management benefits from a unique 2-way recharging architecture that combines PayMobile Voucher Management Client-to-Online Charging System (“Recharging logic”) and PayMobile Voucher Management Server-to-Online Charging System (“Redeeming logic”) recharging interfaces. Typically, the PayMobile Voucher Management Client-to-OCS interface is used for value-added recharge services, while the PayMobile Voucher Management Server-to-OCS interface is used for mission critical mobile recharges. This unique 2-way recharging architecture enables safe migration and upgrades for prepaid network elements and allows easy integration of new recharging services with almost zero downtime.

## 2.5 A flexible segmentation toolbox

PayMobile Voucher Management provides a flexible service creation environment to mediate various criteria from different sources through recharge scenarios. While these recharge scenarios are a way to segment the subscriber base, it operates in real-time to enable the subscriber to choose the desired recharge.

## 2.6 Easy, user-friendly administration

PayMobile Voucher Management offers web-based, front-end applications to reduce overheads, improve record keeping and speed up deployment.

## 2.7 Multiple recharge channels

PayMobile provides customer convenience and satisfaction, utilizing the following recharge channels:

- ✓ SMS Gateway
- ✓ IVR/UIP Gateway
- ✓ USSD Gateway
- ✓ ATM Gateway
- ✓ Web Portal (Top Up API)

## 2.8 Types of recharges and recharge scenarios

### 2.8.1 Recharge types

- ✓ Voucher recharge (self-care channels)
- ✓ Manual recharge (customer care)
- ✓ Batch recharge
- ✓ Direct recharge (credit card or bank account)
- ✓ Direct transfer (P2P)
- ✓ External recharge (top up API)

## 2.8.2 Recharge scenarios

- ✓ Scenario per subscriber profile (Prepaid, Postpaid,...)
- ✓ Personalize your recharge (SMS, Airtime...)
- ✓ Choose your promotion
- ✓ Opt for a better tariff plan
- ✓ Upgrade your status
- ✓ Activate new services

## 2.9 Multiple balances recharge

PayMobile Voucher Management maintains customer's prepaid credit usage (SMS, airtime, bonus airtime...).

## 2.10 Promotional recharge services

Through the promotional recharge services, service providers can react quickly to new market developments, targeting specific vouchers or subscribers recharging regularly. eServGlobal has compiled a library of the most frequently demanded promotional templates.

## 2.11 Scalability

The solution is fully scalable to allow for future growth:

- ✓ Cluster Solution: up to 2,500,000 subscribers
- ✓ Medium Cluster Solution: up to 5,000,000 subscribers
- ✓ Large Cluster Solution: up to 10,000,000 subscribers
- ✓ Distributed Cluster Solution: more than 10,000,000 subscribers

## 2.12 Reliability and High-Availability

The solution provides operator-grade levels of reliability and high-availability. It has been deployed in leading service providers' networks and has been used in operators networks exceeding 30 million subscribers and 700,000 recharges per busy hour.

## 2.13 Comprehensive Customer Care

eServGlobal provides full web-based customer care service or a customer care API. The PayMobile Voucher Management API (Java or SOAP based) offers all the customer care services, packaged in a development library. Secure access to PayMobile Voucher Management is a constant focus and the APIs are fully compliant with existing PayMobile Voucher Management audit trails and user logins.

## 2.14 A complete range of services

PayMobile Voucher Management is only one of the services available through eServGlobal's PayMobile solution:

- ✓ Voucher Management
- ✓ Electronic Recharge ("E-Top-Up")
- ✓ Electronic Vouchers ("E-Vouchers")

- ✓ Mobile Payments
- ✓ Interface to HomeSend hub for international money transfers

These services are available on a unique hardware platform and are activated based on service provider's demand. It allows services providers to

- ✓ Reduce capital expenditure investments when deploying new services
- ✓ Couple both voucher management and electronic recharge solutions
- ✓ Be prepared for innovative services like mobile payments and money transfers

---

### 3 Conclusion

eServGlobal's PayMobile offers an open, interoperable, secure, robust and scalable migration voucher manager suitable for every step of the migration process. Its flexibility makes it ideal for all situations such as mobile network operators who are seeking a multi-IN vendor environment or are in the process of performing such a migration. It is also perfectly suited for a challenger IN or convergent billing vendor seeking to propose a strong and proven migration path to their customer.

PayMobile remains the preferred solution for many operators following the completion of the migration project, due to the numerous benefits in terms of value-added services. The PayMobile solution can be customized for future needs in terms of top-up, e-top-up or mobile payments infrastructure.

With extensive market experience and industry leading know-how in this very specialized top-up and payment market, eServGlobal's solutions allow our customers to innovate and lead in their local markets.