

User Requirement Specification

VOUCHER MANAGEMENT SYSTEM

VOMS



| | |
|---|---|
| Group: Engineering | Draft Version: Draft |
| Division NSD: Network Service Development | Department: Business Support Systems |
| Author: SD- BSS | |

DOCUMENT HISTORY

(SEE Appendix A: Document change detail FOR MORE INFO)

| Revisions | Description of document history | Author | Signature | Date |
|-----------|---------------------------------|--------|-----------|-----------|
| 0.1 | Initial draft | SD-BSS | | 2022/18/2 |

DISTRIBUTION LIST

| Copy Number | Name | Group/ Division/Organisation |
|-------------|------------------|--|
| 1 | Tony Nkhwashu | EHOD :NSD |
| 3 | SD-BSS | Engineering: Network Service Development |
| 4 | Sisanda Nongxa | PM: Engineering |
| 5 | Hlengiwe Mbhele | Senior Specialist: SD-BSS |
| 6 | Nozipho Nyandoro | Manager: SD-BSS |
| 7 | Chief Masia | Principle Specialist SD-BSS |

Attachments/References:

[1] HLD



MVNE Voucher
Management - V0.7. .|

[2] Eng Fusion Spec



NSD-TEC-Spec-Variable-Voucher V3.1.pdf

TABLE OF CONTENTS

| | | |
|---------|--|----|
| 1 | OBJECTIVE | 4 |
| 2 | SCOPE | 4 |
| 2.1 | BUSINESS RULES | 4 |
| 3 | VOMS HIGH LEVEL ARCHITECTURE | 5 |
| 4 | VOMS SA STRUCTURE | 6 |
| 4.1 | REQUIREMENTS FOR VOMS | 6 |
| 4.1.1 | VARIABLE VOUCHER | 6 |
| 4.1.2 | REDEEM VOUCHER | 7 |
| 4.1.2.1 | REDEEM VOUCHER REQUEST PARAMETERS | 8 |
| 4.1.2.2 | REDEEM VOUCHER RESPONSE PARAMETERS | 8 |
| 4.2 | ERROR CODE | 9 |
| 4.3 | SRS | 10 |
| 4.4 | VOBILL | 10 |
| 4.5 | PAMS | 10 |
| 4.6 | ENG FUSION | 10 |
| 4.7 | MVNE | 11 |
| 5 | TIME OUT | 11 |
| 6 | ARCHIVE | 11 |
| 7 | REPLICATION AND REPORTING | 11 |

1 OBJECTIVE

Pareteum's MVNE solution is a multi-tenant service delivery platform that gives MVNOs the ability launch new offerings. Vodacom has partners with Pareteum to provide business support systems, administration, and operations support systems to a mobile virtual network operator. This will enable the MVNOs to offer services to their own customers with their own brands. The first MVNO that will be part of the integrations is Mr Price.

VOMS Voucher Management System will be responsible for managing and validating Vodacom recharge vouchers. Mr Price subscriber will be able to use Vodacom Vouchers to recharge their account and will also use their own Mr Price variable vouchers to recharge account. Only airtime recharges will be managed by Vodacom VOMS at this stage.

2 SCOPE

1. VOMS to manage and generate vouchers upon request for variable voucher, and manage voucher status.
2. VOMS to redeem MVNO vouchers and Vodacom voucher by exposing new API.
3. Store subscriber recharge history information.
4. Expose an interface for Engineering Fusion to perform recharges information.
5. Replication of recharge events to SRS
6. VOMS should comply with SOX to support strict security and audit controls. Every interface to VOMS must have authentication in place. Restriction of passwords in plain must be applied, all passwords must be encrypted.
7. VOMS to expose HTTPS interface

2.1 BUSINESS RULES

1. Teum to ensure MSISDN is valid before submitting a reload.
2. Failed transaction to be resubmitted by MVNO using the same transaction ID, MSISDN and Voucher PIN.
3. Vodacom VOMS will verify if a voucher PIN is valid during redemption and respond to MVNE
4. MVNO subscribers who attempt to redeem a voucher PIN incorrectly seven [7] times will be barred/locked from recharging for the next twenty four [24] hours.
5. MVNO subscribers can only redeem their MVNO voucher PINs and not PINs belonging to another MVNO.
6. MVNO subscribers will not be able to purchase Vodacom bundles.
7. PartnerID config on PAMS – Mr price will have the private key

3 VOMS HIGH LEVEL ARCHITECTURE

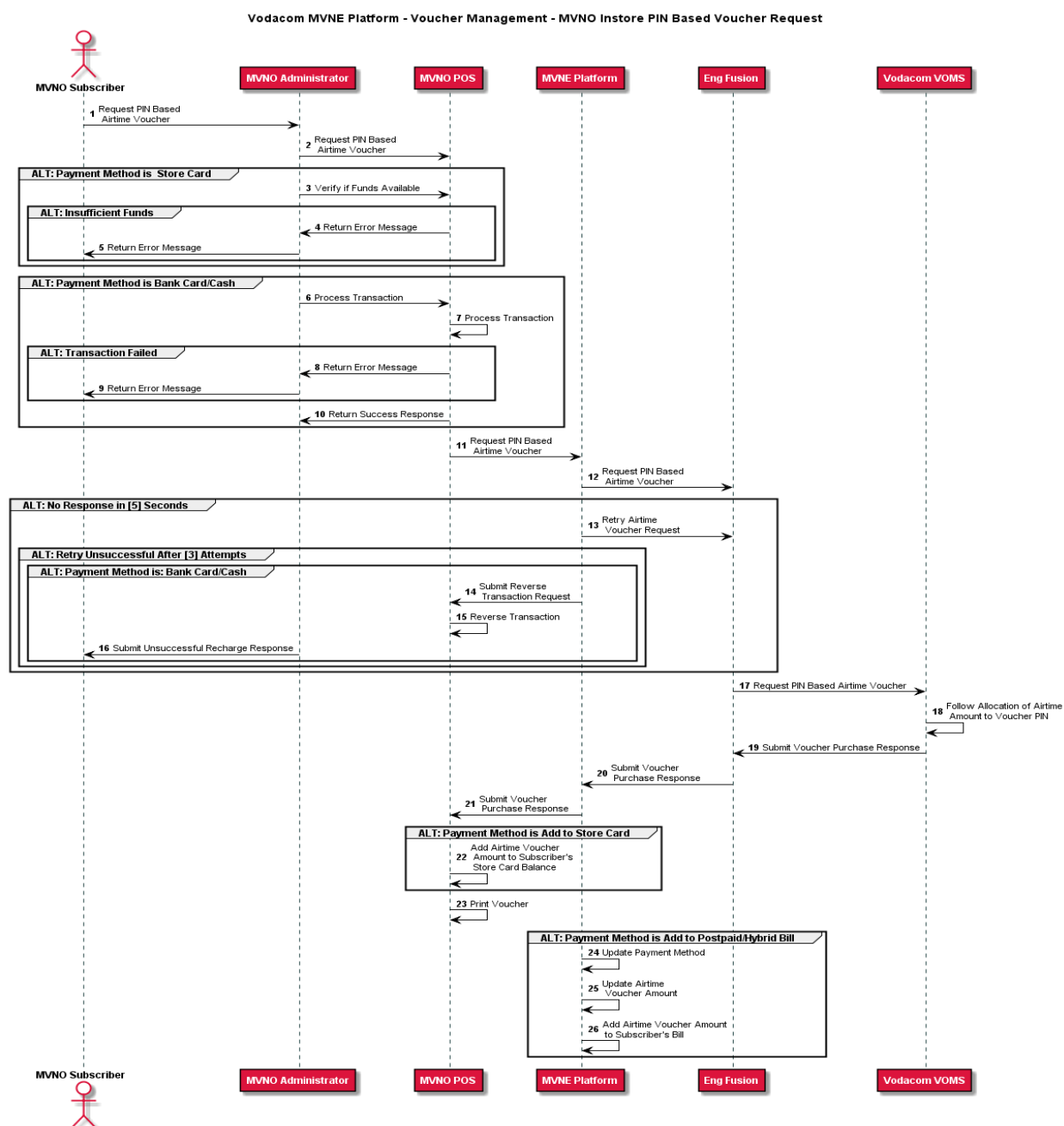


Figure 1: Architectural Overview (taken from HLD)

4 VOMS

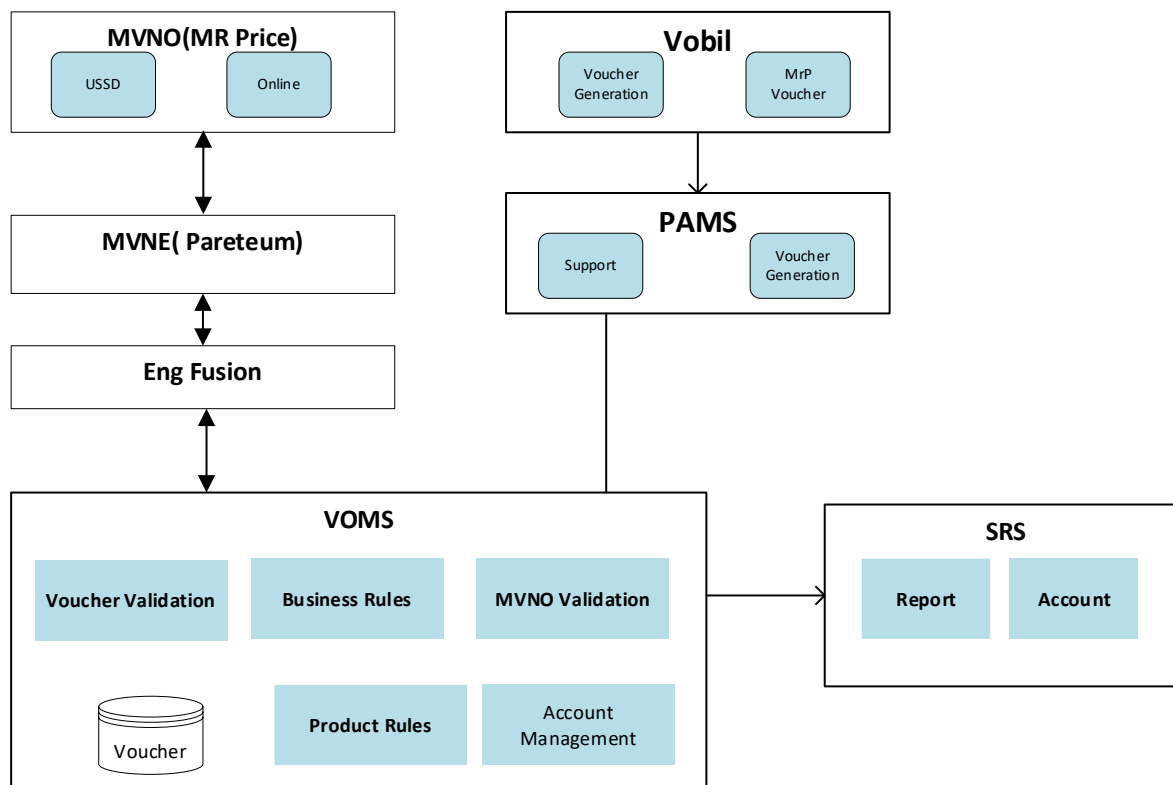


Figure 2: VOMS Structure

4.1 REQUIREMENTS FOR VOMS

4.1.1 Variable voucher

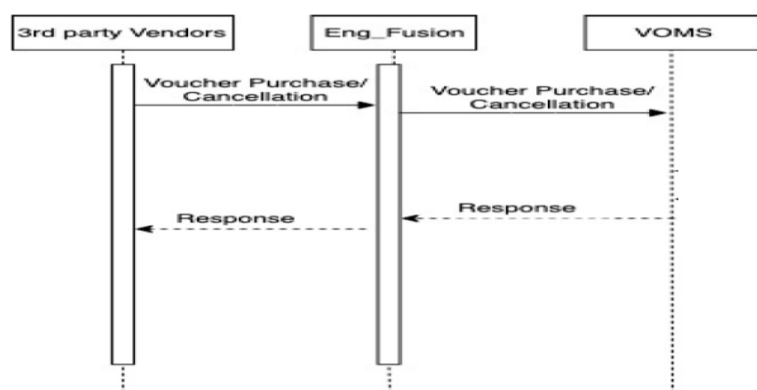


Figure 1 - Architectural Overview

1. MVNO initiates a voucher request/cancellation to VOMS via Eng fusion

2. Eng Fusion Send the request to VOMS
3. VOMS responds with an encrypted next available voucher pin.
4. Eng Fusion sends the card information and encrypted voucher back to MVNO

4.1.2 Redeem voucher

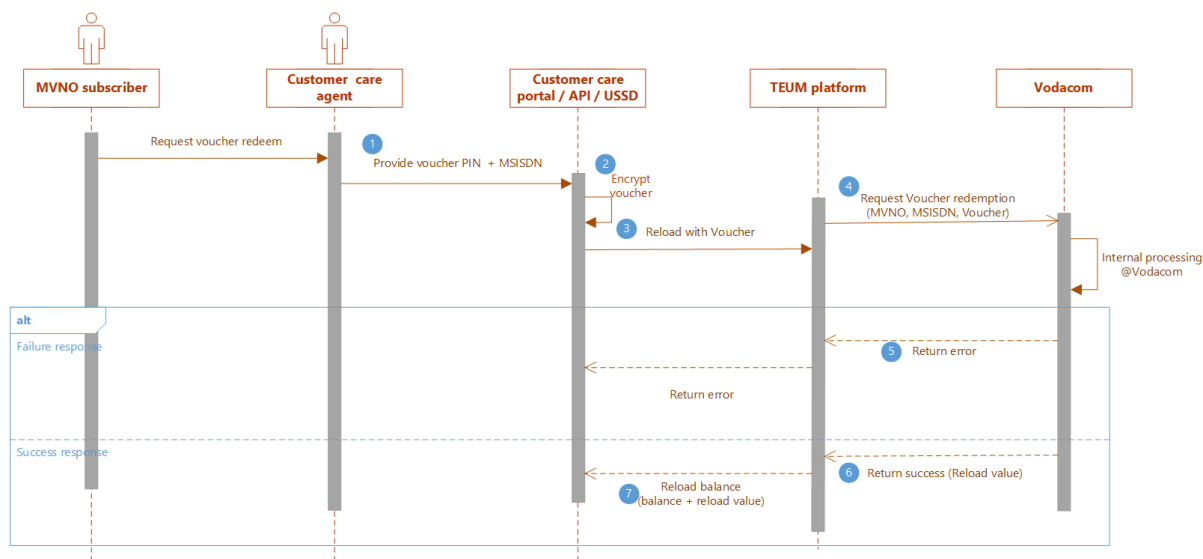


Figure 3: Redeem voucher(taken from HLD)

VOMS will be responsible for the following

- Redeem MVNO(MrPrice) and Vodacom vouchers
- Reuse existing recharge API for MVNE to perform recharges via Eng Fusion.
- Keep recharge history records
- Receive and process an encrypted voucher from MVNE. The MVNO shall encrypt the voucher PIN
- Update SRS with voucher information.
- VOMS will **not** send SMS notification to subscriber
- When the voucher redemption process was successful at Vodacom side, the voucher amount will be returned to the response. The balance of the prepaid subscription is increased with the voucher amount returned by vodacom.

4.1.2.1 Redeem Voucher Request Parameters

| Parameter Name | Mandatory y/ Optional | Description | Example |
|----------------|-----------------------|---|--|
| MSISDN | Mandatory | MSISDN to be recharged. | 27829801234 |
| schemeName | Mandatory | The identification of the identification scheme | MSISDN |
| VOUCHER | Mandatory | MVNO to encrypt the value of this element using 512 bit RSA encryption. | 1ADA0C6D46104E36170 15C6582A37B5137FFDB F10AE1866CC8132FBE2 F55448BDA523ED87731 D6B9EE17765A1553EC5 4A689D8CA7E9F9D053C 740BCC12F71E27 |
| ORIGINATOR | Mandatory | Identifies the MVNO used to perform the redemption. | MRP |
| schemeName | Mandatory | The identification of the identification scheme | Network Operator |
| CHANNEL_ID | Mandatory | Identify the channel used to perform the recharge. | E.g. USSD |
| schemeName | Mandatory | The identification of the identification scheme | CHANNEL_ID |
| SALES_ID | Mandatory | The field identifies the Sales ID that performed the recharge. Can be used to identify promotions within a channel. Can be Info used for reporting. | E.g. USSD |
| schemeName | Mandatory | The identification of the identification scheme | SALES_ID |
| MESSAGE_ID | Mandatory | Transaction Type Identifier MVNE will only use Redemption Message_ID = 2510 | E.g. 6511 |
| schemeID | Mandatory | The identification of the identification scheme | The name of the characteristic |

4.1.2.2 Redeem Voucher Response Parameters

| Parameter Name | Mandatory or Optional | Parameter Value | EXAMPLE |
|----------------|-----------------------|-----------------|---------|
|----------------|-----------------------|-----------------|---------|

| | | | |
|----------------|-----------|---|--------------------|
| AIRTIME_AMOUNT | Mandatory | Airtime amount is Rands | In Rands 20 |
| RANDS | Mandatory | The currency of the amount. | ZAR |
| MSISDN | Mandatory | Subscriber MSISDN to be recharged | 27829870366 |
| schemeName | Mandatory | The identification of the identification scheme | MSISDN |
| VOUCHER_OWNER | Mandatory | This field will identify the voucher owner or type. | MRPRICE or VODACOM |
| schemeName | Mandatory | The name of the identification scheme | Network Operator |
| Voucher Pin | Mandatory | encrypt the value of this element using 512 bit RSA encryption. ?? | 123456789101121 |

4.2 ERROR CODE

Existing error code will be used

| Error Code | Reason | Description |
|------------|----------------------------------|--|
| 201 | NO_TRANSACTION_REQ TID | If parameter like REQ_TID is required in the request but not provided |
| 202 | WRONG_MSISDN | MSISDN Does not exist. |
| 210 | WRONG_PARAMETERVALUE_IN_MSG | The parameters supplied does not comply or missing. |
| 220 | VOUCHER_NOT_ACTIVTED | Voucher Batch is not activated. Voucher cannot be used. |
| 221 | VOUCHER_PENDING | Voucher rules not set. Voucher cannot be used |
| 222 | VOUCHER_BLOCKED | Voucher is blocked. Voucher cannot be used |
| 223 | VOUCHER_USED | Voucher already used - Archived. Voucher cannot be used |
| 224 | VOUCHER_EXPIRE_STATE, | Voucher Batch expired. Voucher cannot be used |
| 226 | VOUCHER_INVALID_STATE | Voucher not activated. Voucher cannot be used |
| 227 | RECHARGE_TEMPORARY_NOT_AVAILABLE | Subscriber cannot use Voucher redemption suspended. |
| 230 | VOUCHER_NOT_FOUND | Voucher PIN entered invalid. |
| 231 | VOUCHER_EXPIRED, | Voucher expired. Voucher cannot be used |
| 240 | MSISDN_BLOCKED | Subscriber entered incorrect PIN 7 times and is blocked for the day |
| 249 | TRANSACTION_DELAYED. | Voucher was redeemed successful but allocating money was delayed allocation will happened later. |

| | | |
|-----|--------------------------------------|--|
| 250 | TECHNICAL_ERROR. | Any internal system error where the request could not be processed. |
| 251 | VOUCHER_NOT_LINKED_FOR_THIS_PROVIDER | The voucher belongs to a different provider and cannot be redeemed for current provider. |
| 252 | VOUCHER_TYPE_NOT_ALLOWED | This voucher type is not provisioned for use for current provider. |
| 253 | VOUCHER_DECRYPTION_ERROR | The RSA 512 encrypted pin cannot be decrypted. Check public keys for sender. |

4.3 SRS

The following changes need to be applied to the current monthly SRS report, which is required by Vodacom Billing Management and Vodacom FinOps, for reporting purposes.

The changes are needed to report on the MVNO “usage/redemption” of Vodacom vouchers. The MVNO specific vouchers (Mr Price variable vouchers) will also form part of the report, but for these there are no changes required to the current reporting.

The changes to the report are:

1. Add additional columns on the report for:
 - a. TOT_USED_MVNO – The total number of Vodacom vouchers used/redeemed by MVNO subscribers
 - b. USED_MTH_MVNO – The number of Vodacom vouchers used/redeemed for the month by MVNO subscribers
 - c. R_TOT_USED_MVNO – The Rand value of the total number of Vodacom vouchers used/redeemed by MVNO subscribers
 - d. R_USED_MTH_MVNO - The Rand value of the number of Vodacom vouchers used/redeemed for the month by MVNO subscribers
 - e. M_USED_MTH_MVNO - The number of Vodacom vouchers used/redeemed for the month by MVNO subscribers
 - f. MR_USED_MTH_MVNO - The Rand value of the number of Vodacom vouchers used/redeemed for the month by MVNO subscribers

The above changes will allow Vodacom Quality Control & Reporting to view and report on all the Vodacom vouchers used/redeemed by the MVNO subscribers.

4.4 VOBILL

Vobill will be required to generate variable voucher pins and Mr Price Pin using the existing processes.

4.5 PAMS

PAMS will be required to align its templates with Vobill and create the new voucher types, using the existing process

- Provide query recharge history functions.

4.6 ENG FUSION

Engineering fusion will expose the redeem voucher and variable voucher API for Pareteum to use

4.7 MVNE

- Validating MSISDN before sending request to Vodacom

5 TIME OUT

Voucher redemption timeouts

- Any connection or time out errors on a redeem request must be resubmitted by the requesting MVNO with the SAME originator transaction ID and MSISDN and Voucher (encrypted) and a RETRY transaction ID. VOMS will link the originator transaction ID and use with the stored transaction ID if the transaction was already processed and will reply with the values stored for the transaction if it was successful. The RETRY transaction ID is ONLY used in this scenario. The retry submitted time is not critical and can be immediately or delayed for some time.
- In case a voucher redemption fails, then the MVNO system should retry the transaction using the same TID.
- The retry TID should have a prefix.

6 ARCHIVE

Used vouchers should be archived straight after redemption, thus limiting the number of records in the active table.

7 REPLICATION AND REPORTING

The MVNE we be responsible for generating report that will be used by the reporting systems.

VOMS will send SRS file for reporting requirements as per current.