UNPLUGG GROUP

PASSION MEETS TECHNOLOGY

Lesotho Funeral and Vodacom M-PESA

Integration with U-PAS System

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1. Introduction

This document outlines the business requirements for integrating Vodacom M-PESA payment platform with the U-PAS funeral parlour management system used by Lesotho Funeral Services (LFS). The integration aims to enable members to conveniently pay policy premiums via M-PESA with real-time updating of policy status and automated reporting for administration.

2. Background

LFS currently manages funeral cover policies through the U-PAS system, which handles policy management, collection, claims, and reporting. Members make payments for their funeral policies, which currently lack seamless integration with mobile payment platforms such as M-PESA.

Vodacom M-PESA is widely used for mobile payments in Lesotho. Integrating M-PESA via its API with U-PAS will facilitate real-time premium payments, instant policy updates, and enhanced financial transparency.

3. Objectives

- Enable members (new and existing) to pay funeral policy premiums via Vodacom M-PESA.
- Integrate M-PESA API with U-PAS for real-time payment confirmation.
- Update policy statuses immediately upon payment.
- Provide members with up-to-date policy statements on demand.
- Allow LFS finance to efficiently track collections and produce accurate reports.
- Ensure secure authentication, reversal, error logging and reporting mechanisms within the integration.

4. Stakeholders

- Lesotho Funeral Services management and finance teams.
- Members/policyholders using M-PESA for payments.
- Vodacom M-PESA technical and support teams.
- U-PAS system administrators and developers.

5. Scope

Payment Processing

- Enable Lesotho Funeral Policyholders to make premium payments via Vodacom M-PESA using mobile phones.
- Support payments from both new members enrolling for policies and existing members continuing premium payments via M-PESA.
- Use M-PESA API to capture payments in real-time, ensuring immediate updating of payment status within the U-PAS platform.

Real-Time Policy Update

- Automatically update policy statuses and premium payment records in the U-PAS system upon payment confirmation.
- Reflect updated payment and policy information immediately in member accounts.
- Provide the latest policy statements to members upon request, showing up-to-date premium payment status.

API Integration Points

- Member Lookup: API endpoints to retrieve member details by ID number or policy number for verification and status checks.
- Statement Retrieval: API functionality to fetch current and historical policy statements.
- Payment Reversal: API support for reversing premium payments made in error, updating policy and financial records accordingly.
- Authentication & Security: Secure API access with authentication mechanisms (e.g., API keys or OAuth), ensuring that only authorized systems and users can perform operations.
- Error Logging: Capture and log all payment-related errors, transaction failures, or integration issues for troubleshooting and audit purposes.
- Reporting: Provide comprehensive payment, collection, and reversal reports for LFS finance and management teams for monitoring and accounting.

Security and Compliance

- All data transmitted between U-PAS and M-PESA services will be encrypted using SSL/TLS.
- The integration will comply with data protection laws to safeguard member information and transaction data.
- Secure storage and handling of API credentials such as consumer keys, secrets, and short codes.

User and Stakeholder Interaction

- Policyholders interact with M-PESA for premium payment initiation.
- U-PAS system handles backend processing, policy updates, and reporting.
- LFS Finance uses generated reports for accounting, audits, and financial management.
- Technical teams ensure smooth API integration and monitor system health.

Reporting and Administration

- Detailed financial and transaction reports covering payments received, reversals processed, pending or failed transactions.
- Reports accessible via U-PAS system with export options in standard formats (e.g., Excel, PDF).
- Real-time dashboards for monitoring collections and payment activities.

Exclusions (Out of Scope)

- Development or changes to M-PESA core payment infrastructure beyond API usage.
- Handling claims processing beyond payment of premiums.
- Direct member support for M-PESA account issues (responsibility of Vodacom).

Assumptions

- U-PAS system architecture supports integration with external RESTful APIs.
- Members have valid M-PESA accounts on Vodacom network; this can seamlessly be provided to current members without M-PESA accounts.

6. Functional Requirements

6.1 Member Payment Functionality

- o Members can initiate premium payments via M-PESA using Vodacom numbers.
- o M-PESA transactions are verified via API callbacks/webhooks.
- o Payment status is updated in U-PAS in real-time.
- o Members receive instant confirmation of payment and updated policy statements.

6.2 API Functions for Client Applications

- o Retrieve member details by ID number or policy number.
- o Fetch latest policy statements for members.
- o Process reversals of premium payments.
- o Authenticate API clients securely via API keys or OAuth tokens.
- o Record and log errors for payment issues.
- o Provide reporting data on payment transactions and collections for LFS finance.

6.3 Security Requirements

- o API access must use secure authentication mechanisms.
- o All data exchange must be encrypted using SSL/TLS.
- o Sensitive member and payment information must be protected and comply with relevant data privacy regulations.

6.4 Integration and Communication

- U-PAS will consume M-PESA RESTful APIs for:
  - Customer to Business (C2B) payments.
  - Payment reversals.
  - Transaction status queries.
- M-PESA API credentials (Consumer Key, Secret, Shortcode) must be securely stored and managed.
- Webhooks will be used to notify U-PAS of payment statuses in real-time.

6.5 Reporting

- LFS finance can generate reports on collections, transaction statuses, reversals, and errors.
- Reports can be filtered by date, policy, and member.
- Reporting data will be accessible via U-PAS interface and downloadable in common formats.

7. Non-Functional Requirements

- High availability and reliability of the integration to support continuous payment processing.
- Scalable architecture to support growing number of members and payments.
- Usability for finance and customer service teams to access reports and resolve issues promptly.
- Robust error and exception handling for troubleshooting.

8. Constraints

- Integration timeline dependent on Vodacom M-PESA API access approvals.
- Network reliability impacts real-time payment updates.
- Legal and compliance requirements for data security.

9. Proposed Integration Process

- LFS registers and obtains M-PESA API credentials.
- U-PAS system developers implement MPESA API endpoints in the U-PAS payment module.
- Payments made by members via M-PESA are processed by Vodacom and forwarded via API/webhook to U-PAS.
- U-PAS updates policy status and transactions immediately.
- Finance team accesses collection and error reports through U-PAS.

10. Glossary

- **M-PESA**: Mobile payment and money transfer service by Vodacom.
- **U-PAS**: Unplugg Funeral Parlour Management and Insurance System.
- **API**: Application Programming Interface.
- **C2B**: Customer to Business payment.
- **SSL/TLS**: Secure Sockets Layer / Transport Layer Security for encrypted communication.