REQUEST FOR PROPOSAL

Open Loop Integration

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1. Introduction and Overview

Open Loop Integration between NGO and FSP allows simple financial transactions, the NGO transfers mobile money to another organization's account through integrated payment services. Transfers can be to external organizations or within the same organization. Financial Service Provider (FSP) can be a bank, a mobile phone operator, remittance agent or local transfer agent, etc.

There are three stakeholders in the open loop integration process:

- NGO
- FSP and/or Bank
- Beneficiary

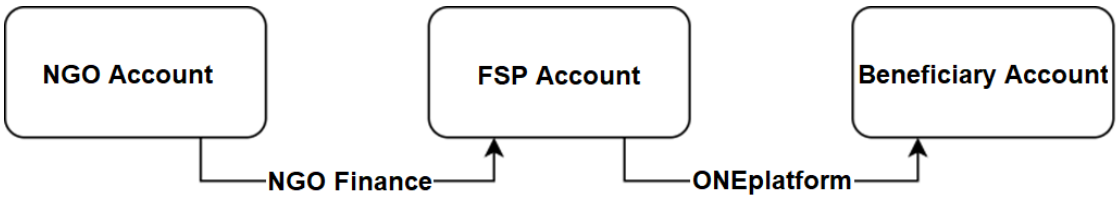

Diagram 1: Stakeholders

2. Scope of Work

The process in this document outlines the steps involved in Financial Service Provider (FSP) identification for a direct cash transfer project. In this type of project, the selected agent as FSP transfers specified funds from NGO to pre-defined/selected beneficiaries.

2.1. General Data Flow and Security

Schema that identifies all key steps related to end-to-end operation with Financial Service Provider (FSP) is below.

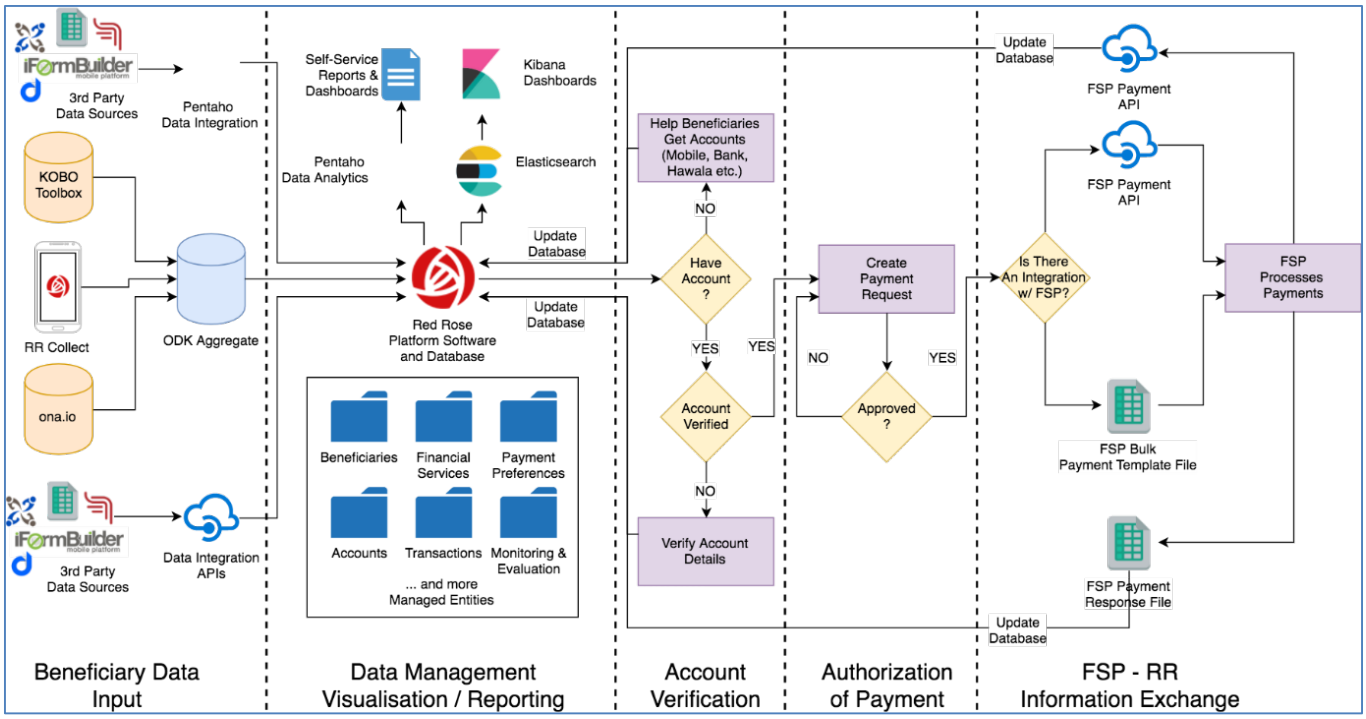

Diagram 2: General Open-Loop Procedure Flow

2.2. Beneficiary Data Input

If ODK based RRCollect application or any other ODK based tool used for the data collection, then data inside the mobile devices are secured with AES256 thanks to securities that are put in place by the ODK based apps. Encrypted data then is transferred to ODK Aggregate Server that is located inside Red Rose Data Centre (AWS) via HTTP Secure connection, automatically decrypted and stored inside Red Rose Database.

2.3. Data Management

Once the beneficiary data is stored in the system selection process, duplication checks, verification or other program related tasks which may require program staff to access the data. All these aforementioned tasks happens within the Red Rose platform. Platform access is controlled via Role Based Access Control (RBAC) mechanism that ensures only the relevant staff can access/modify the data on a need to know basis.

2.4. Account Verification

Some FSP integrations will require Know Your Customer (KYC) information sharing if new bank accounts are to be opened for beneficiaries. Additionally country regulations can require FSP's to hold onto some data (pre-paid Mastercard, new SIM card issuance for beneficiaries, some type of remittances etc.) In these types of cases, Red Rose system will provide the data to the FSP if the NGO signed the data sharing agreement with the FSP. Data will be provided via over SSL connection to an API, SFTP File Exchange, or a site-to-site VPN connection.

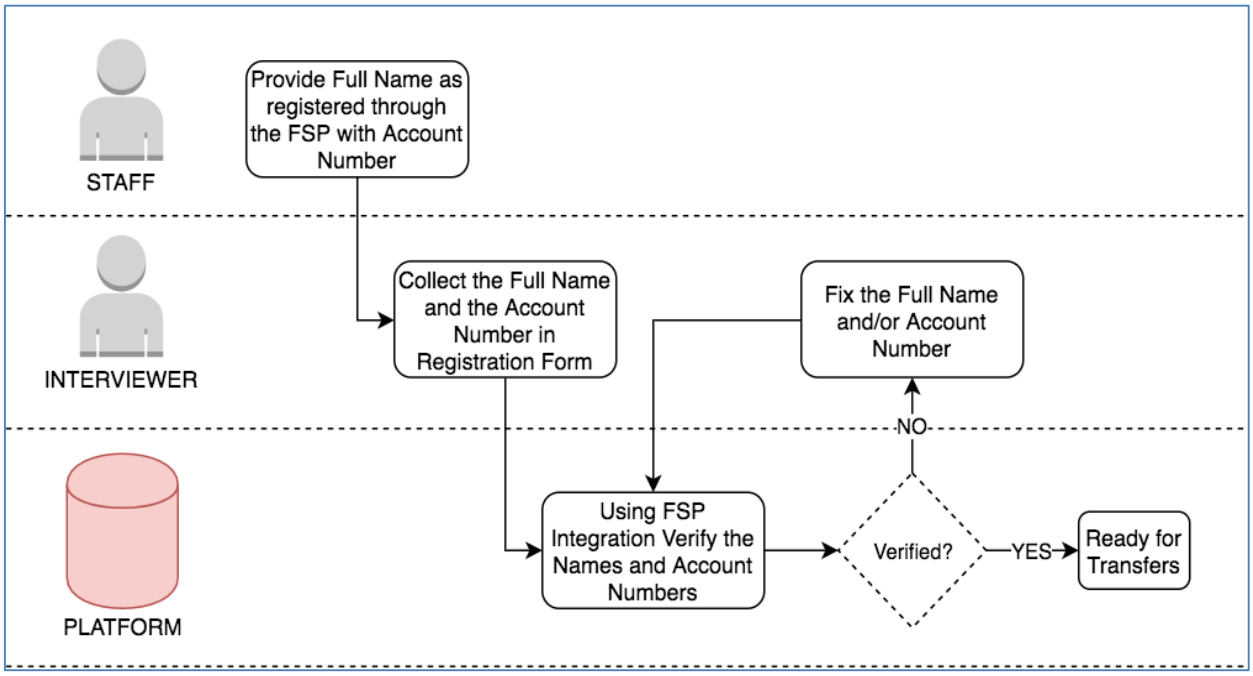

Diagram 3: Account Verification Process

2.5. Authorization of Payment

Program manager prepares a transfer to the beneficiaries in Red Rose platform and sends it to the request mechanism where person with approval rights handles the approve/reject operations. Access for approval rights controlled by the RBAC mechanism. In addition, One Time Password (OTP) can be enabled for financial approvals. If OTP is enabled, ONEplatform will send a randomly generated number via SMS to the user with financial approval rights as a two-step verification process to complete a financial action.

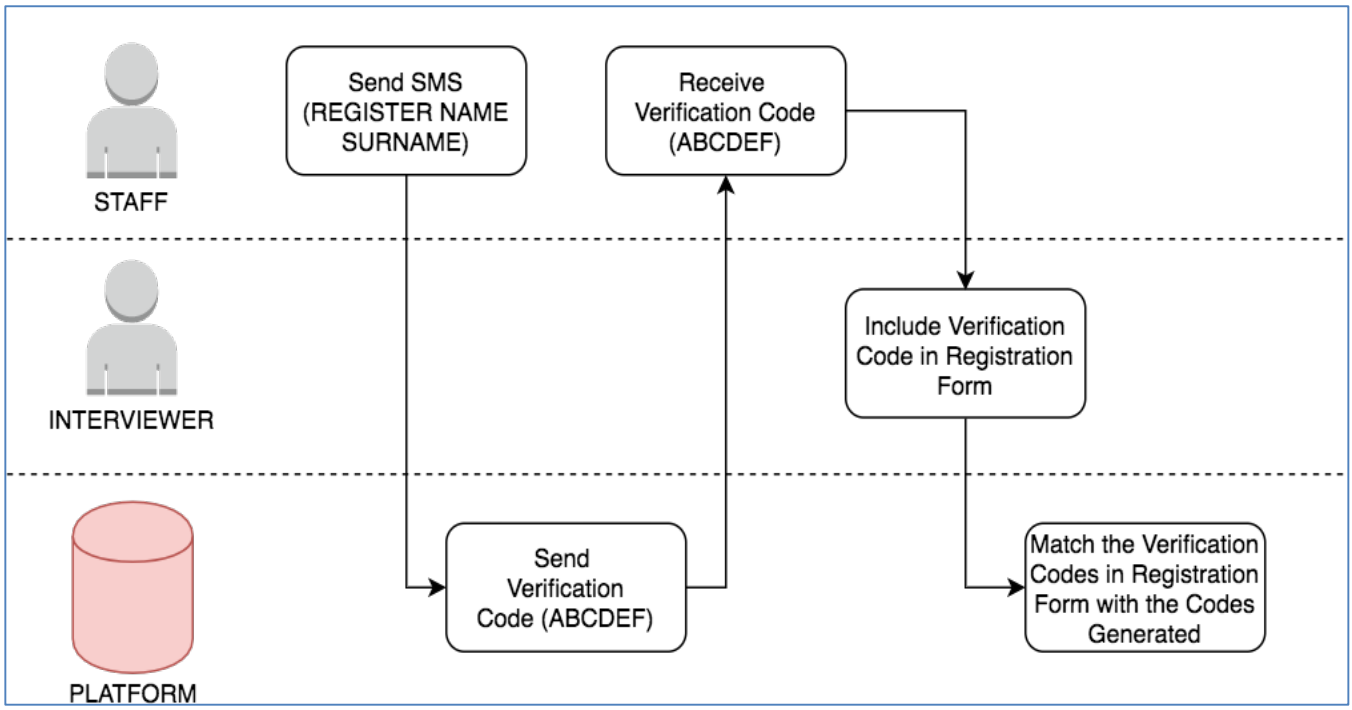

Diagram 4: Payment Authorization Process

2.6. Information Exchange

Once a user within the Red Rose platform approves a financial transfer, depending on the integration type data exchange with FSP will happen. There are three types of FSP integration methods:

2.6.1. No Integration

In this method, FSP expects an email from an authorized person within organization with the payment file or requires a file upload to the FSP's bulk payment web interface. Red Rose platform generates a payment file. Person with the proper rights downloads and sends this file to the FSP. Then FSP returns a response file via email or generates it in their web interface where the file is available for a download. Red Rose platform requires response payment file uploaded to platform by the NGO person who has rights to- perform this operation.

2.6.2. Simple Integration

FSP either provides a Bulk Payment web-interface for file upload or S/FTP site for file exchange. Red Rose platform then automatically uses FSP site via S/FTP, or site-to-site VPN to for to upload payment file. Depending on the capabilities of the FPS, file exchange is encrypted by GPG or similar OpenPGP compliant mechanism. After the file sent, Red Rose platform periodically checks for a response file, downloads when it is available, processes, and updates its database accordingly.

2.6.3. Full Integration

FSP provides a secure API to Red Rose for full integration. Red Rose platform automatically uses the API for transfers, balance check, account verification and similar purposes depending on their availability. Red Rose will receive transfer results over the same API or WebHooks that FSP will use to provide feedback.

System-to-system secure connection between Red Rose and FSP can be over internet or a site-to-site VPN connection. These methods are dependent on requirements and capabilities of the FSP.

Please contact with Red Rose team via *help@redrosecps.com* if you are considering other integration methods that are not mentioned here.

3. Technical Requirements

NGO should perform a simple assessment questionnaire with FSP for the purposes of evaluating FSP's technical capabilities and their willingness on using different data sharing mechanisms.

3.1. API Integration

Do you have an API for integration?

- YES
    - Do you require VPN connection?
        - YES: Please provide the VPN connection document
    - Do you require a static IP for connection?
    - What is your API base?
        - HTTPS JSON, HTTPS XML, other?
    - Please Provide API documentation
    - Do you have a UAT (User Acceptance Test) Procedure?
    - Do you have a TEST environment?
        - YES: Please provide demo environment credentials
    - Does your API enable Account Verification? (Verification of beneficiary account numbers)
    - Does your API enable Balance Check?
        - For beneficiary accounts
        - YES: Please provide documentation
        - For main organization account
    - Does your API have callbacks to notify our system?
        - YES: Please provide us documentation

3.2. File Exchange

Do you have a File Exchange Method for integration?

- YES
    - What format is it based on?
        - Excel, XML, JSON, other
    - Please provide us standard templates of the files to be used in exchanging
    - How do we exchange the files?
        - SFTP, Web Upload, other
    - Do you require VPN connection?
        - YES: Please provide the VPN connection document
    - Do you require a static IP for connection?
    - Do you require additional encryption over files?

In both solutions, Red Rose generates a unique ID (Transaction ID, phone number) for every money transfer proposal and lists it in payment file in order to prevent duplications. Unique ID in the payment file should be delivered to Red Rose untouched in the response payment file as it's highly critical to match transactions with the beneficiaries in the Red Rose platform.

4. Conclusion

In all cases, data fields related to personal beneficiary data (name and surname, bank account and/or phone number, payment status, etc.) exchange procedure between Red Rose ONEplatform and FSP depends on the country regulations and FSP's agreement with the NGO. Red Rose will only perform system integration and will enable provision of such data to the FSP by written consent of the organization.