Mojaloop PI-7 Convening

Tanzania Instant Payment System (TIPS)

Wednesday, June 26, 2019

Bank of Tanzania

Agenda

1. TIPS project overview
2. Development updates
3. Our experience with mojaloop
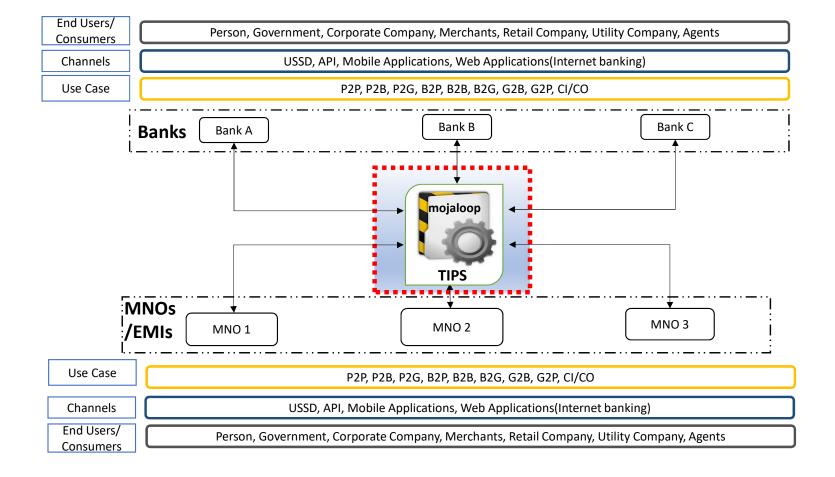4. Demo on oracle shared library

TIPS project
overview

TIPS OVERVIEW

- TIPS – Tanzania Instant Payment System

- A national retail payment infrastructure that shall offer instantaneous / real time payment transactions across different payment service providers

- TIPS is open to all licensed Digital Financial Service Providers (DFSPs) which includes banks and financial institutions, and Electronic Money Issuers(EMIs)
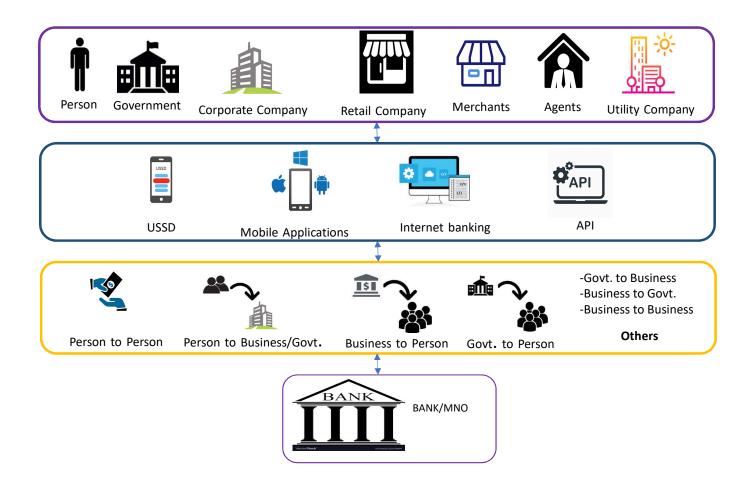
VISION OF TIPS ECOSYSTEM

End Users/ Consumers	Person, Government, Corporate Company, Merchants, Retail Company, Utility Company, Agents
Channels	USSD, API, Mobile Applications, Web Applications(Internet banking)
Use Case	P2P, P2B, P2G, B2P, B2B, B2G, G2B, G2P, CI/CO

Banks Bank A   Bank B   Bank C

mojaloop

TIPS

MNOs /EMIs MNO 1   MNO 2   MNO 3

Use Case	P2P, P2B, P2G, B2P, B2B, B2G, G2B, G2P, CI/CO
Channels	USSD, API, Mobile Applications, Web Applications(Internet banking)
End Users/ Consumers	Person, Government, Corporate Company, Merchants, Retail Company, Utility Company, Agents

VISION OF TIPS ECOSYSTEM: Zooming In

Person   Government   Corporate Company   Retail Company   Merchants   Agents   Utility Company

USSD   Mobile Applications   Internet banking   API

Person to Person   Person to Business/Govt.   Business to Person   Govt. to Person

-Govt. to Business
-Business to Govt.
-Business to Business

Others

BANK/MNO

Development updates

Mojaloop Main Modules

1 | **ACCOUNT LOOKUP**
- Payee account resolution

QUOTES | **2**
- Transaction charges
- Readiness to accept a transfer

3 | **TRANSFER**
- Perform a transfer
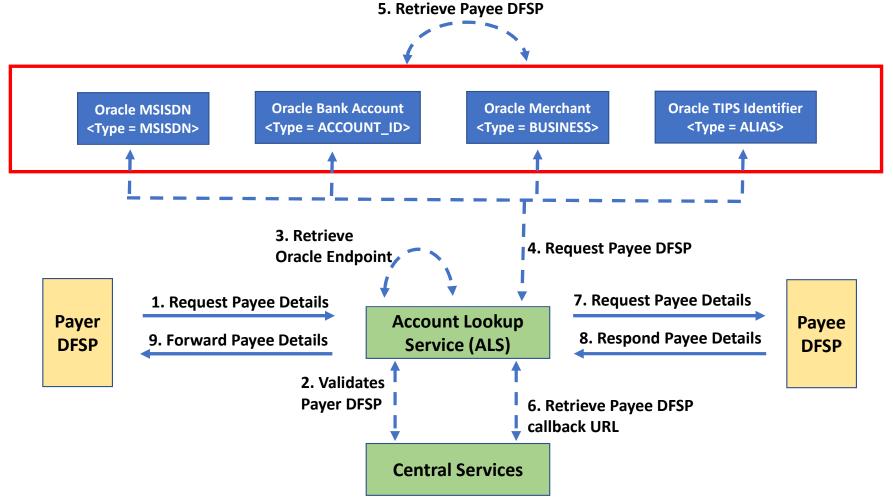
SETTLEMENT | **4**
- Real money to DFSPs
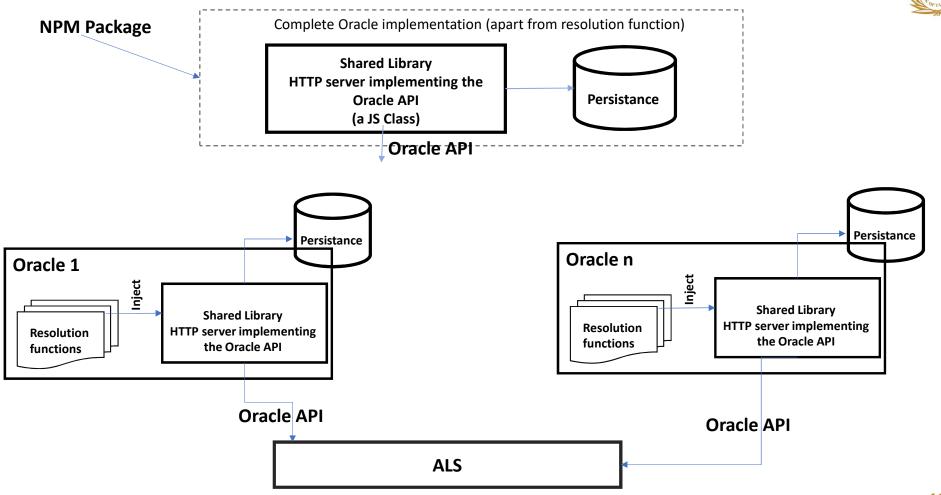- Reconciliation

Account Lookup: Architecture

Account Lookup: Oracles

- Created a template for oracles
  - Used as a template to create oracles that are pluggable to the ALS

- Developed the oracles shared library
  - Node package module to streamline, simplify and shorten development of oracles
  - Code testing
    - [🟢] Unit & Coverage
  - Operations supported (/participants)
    - [🟢] POST – Create
    - [🟢] GET – Read
    - [🟢] PUT – Update
    - [🟢] DELETE – Delete
    - [🔴] POST – Create (Bulk)
  - More operations to be supported (/health)
    - [🔴] GET - Read

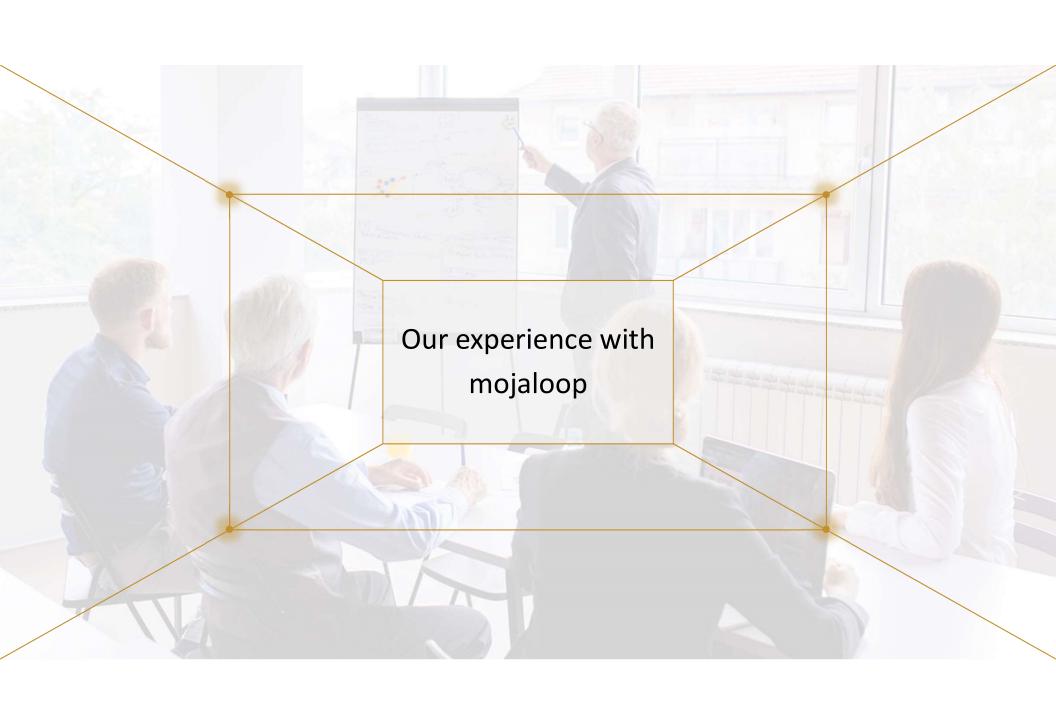- Key: [🟢] Implemented, [🟡] Partially Implemented, [🔴] Not Implemented

Account Lookup: Oracles shared library

NPM Package

Complete Oracle implementation (apart from resolution function)

Shared Library
HTTP server implementing the Oracle API
(a JS Class)

Persistance

Oracle API

Oracle 1

Resolution functions

Inject

Shared Library
HTTP server implementing the Oracle API

Persistance

Oracle API

Oracle n

Resolution functions

Inject

Shared Library
HTTP server implementing the Oracle API

Persistance

Oracle API

ALS

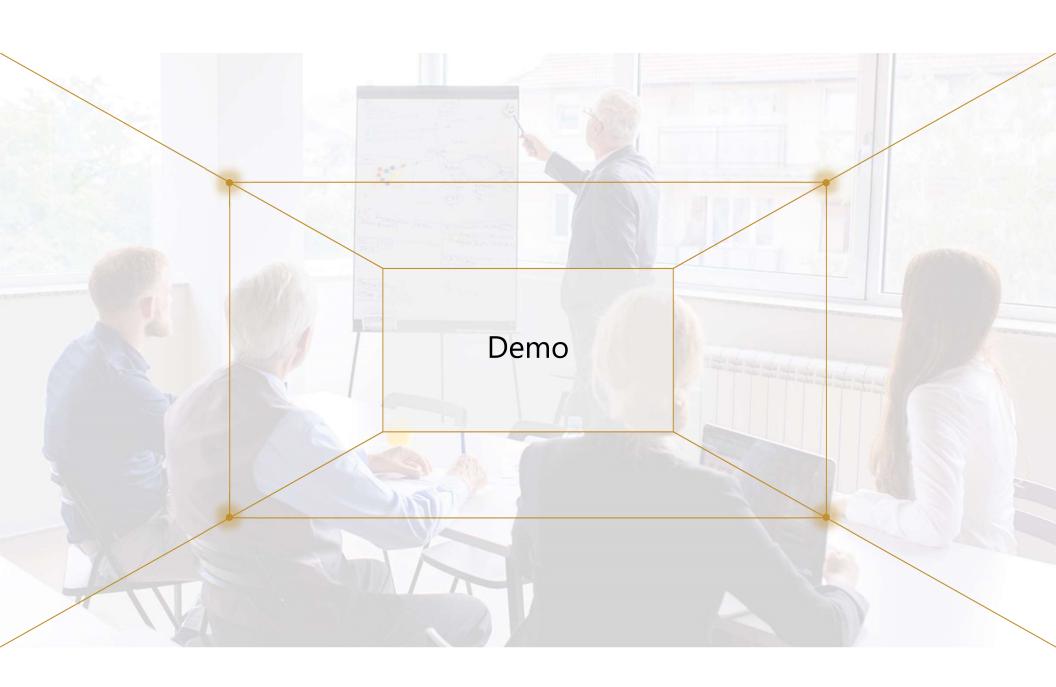# End-to-end flow: P2P & P2B (simple)

- [🟡] Account Lookup
  - Integrate the Oracles with Account Lookup Service and Simulators
  - Focus on four (4) partyIdTypes
    - [🟡] MSISDN, Bank Account (a.k.a ACCOUNT_ID), Merchant (a.k.a BUSINESS)
    - [🔴] TIPS Identifier (a.k.a ALIAS)

- [🟡] Transfer
  - Mojaloop adapter, Central Services & Simulators

- [🟡] Quotes
  - Quoting Services & Simulators

- [🔴] Settlements
  - Settlement Services & Simulators

- Key: [🟢] Implemented, [🟡] Partially Implemented, [🔴] Not Implemented

Our experience with mojaloop

Experiences with Mojaloop

- So far, the modules...
  - Adaptable, scalable & implementable
- Support...
  - OSS & ModusBox
    - ✓Online support – slack, zoom...
  - Documentation
    - ✓API Specification
    - ✓Access to online document repos
  - Participation in various strategic forums
    - ✓Design Authority (DA)
    - ✓Mojaloop convening

Demo

~ Asante Sana ~
Tanzania Instant Payment System (TIPS)
A Digital Financial Connection for All Tanzanians