mojaloop

ssnapp™

Supporting multi-part payments in Mojaloop

Problem statement, proposal and discussion

Goal

Split Payments supported by Mojaloop Multi-part Payments

- Split payments between multiple DFSPs
- Settle the payments on an
- “Any or All” or
- “All or Nothing” basis

We need to support several types of multi-part payment. For example:

1. A single payment is credited to multiple beneficiaries.
2. A customer buys a number of items from different suppliers in a single purchase
3. A customer makes a number of payments to separate beneficiaries

Single payment, multiple beneficiaries

- A customer wants to make a single payment (example: buy a football ticket.)
- The purchase should be resolved into a number of separate payments, for example:
  - The football club receives the price of the ticket
  - A ticketing agency receives a commission for their services
  - The government receives the tax that is due on the transaction
- Formally, this is a single transaction: if any part of it fails, the whole transaction fails
- The accounts which will receive payment may belong to different DFSPs
- The payment should appear on a customer’s statement as a single payment to the agency

Example: Ticketing System

10%

Example

Ticket Broker/ Agency

ssnapp

Payment Initiation Service Provider (PISP)

mojaloop foundation

80%

Football Team

10%

Government

Customer Buys A Ticket

Merchant Selling the Ticket

Split Payment through SSNAPP

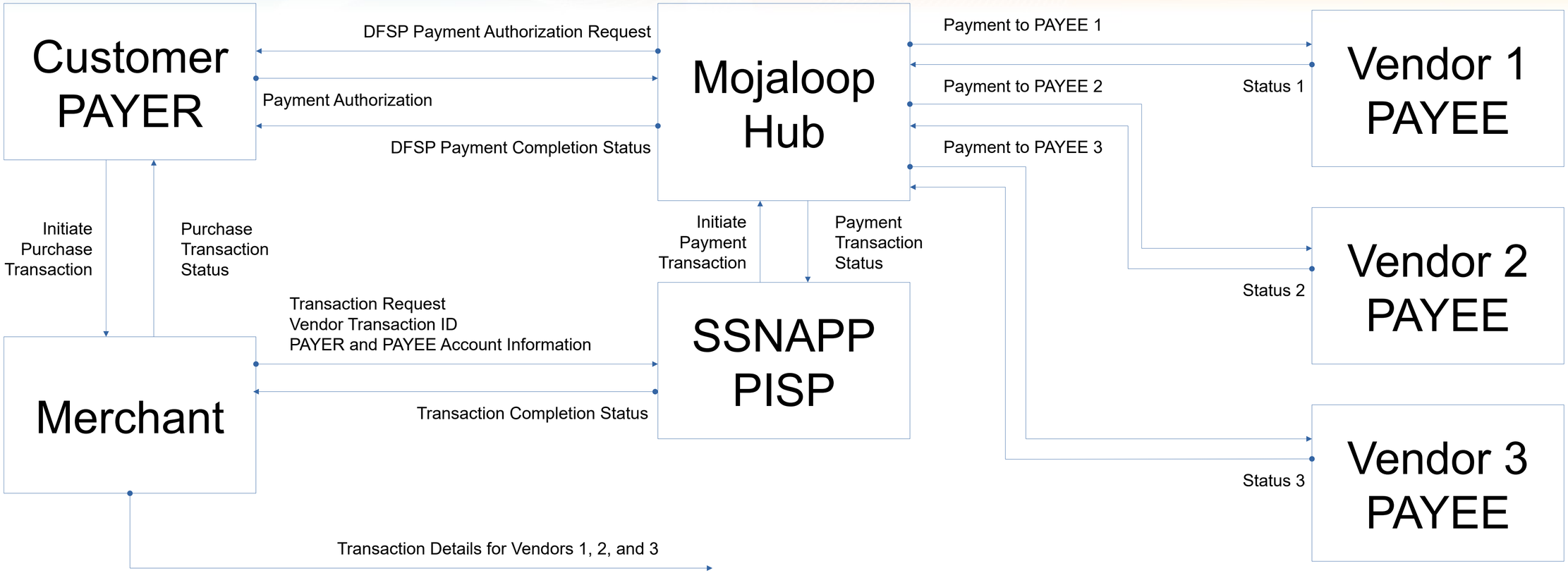
Muti-part Payment through Mojaloop

Each Vendor Receives their Portion

An example…

- A customer wants to buy a ticket for Kinondoni Football Club's match.
- The ticket costs 1,000 TZS
- The agent knows that, of this:
  - 80% should go to the football club
  - 10% is a fee payable to the agent
  - 10% is tax payable to the government

Multi-part Payment Transaction Flow Diagram



The sequence of Mojaloop actions: account linking

1. The customer downloads the SSNAPP app and registers.
2. The customer asks SSNAPP to link to their account (say, at M-Pesa)
3. Mojaloop contacts the customer's DFSP: *I would like permission to act on behalf of your customer, Michael Richards*
4. The DFSP contacts me (via a web page or an OTP) and asks me to confirm the link.
5. The DFSP confirms to the PISP that permission has been granted.

- All this will use standard PISP functionality…

The sequence of Mojaloop actions: identification

1. The customer asks to buy a ticket for Konondoni FC this Saturday
2. SSNAPP knows which DFSP the customer uses, and where to route the payments for tax and commission.
3. SSNAPP sends a request to M-Pesa, asking it to send a bulk request: please transfer:
   - 800 TZS to Kinondoni FC
   - 100 TZS to SSNAPP
   - 100 TZS to the government's tax account

- This is a standard request, except for modifications as follow…

Changes to requesting transactions

- Support multiple transfer requests
- Content of the transfer request should reflect that for bulk quotations (as amended in this proposal)

The sequence of Mojaloop actions: multiple requests for quotation

1. The customer's DFSP sends out a bulk request for quotation with one part for each party who needs to be credited.
   - *This assumes that the extensions to bulk transfers required to support bundling of requests to multiple DFSPs have been implemented.*
2. The switch breaks out the transfer requests and sends one to each payee DFSP.
3. Each payee DFSP responds with its own quotation, and signs the quotation with its own private key.
4. The switch assembles the responses and sends them back to the customer's DFSP.

The sequence of Mojaloop actions: obtaining authorisation

- The customer's DFSP sends the quotation response back to the PISP and asks the PISP to confirm that the customer approves the transfer.
- SSNAPP shows the customer the terms of the transaction and asks the customer to enter their PIN (or fingerprint, or whatever) to approve.
- When the customer confirms, SSNAPP signs the response to validate it and returns it to the customer's DFSP.

The sequence of Mojaloop actions: multiple requests for transfer

1. The customer's DFSP sends out a bulk request for transfer with three parts, one for each party who needs to be credited.
   - *This assumes that the extensions to bulk transfers required to support bundling of requests to multiple DFSPs have been implemented.*
   - *There will be a new flag on the bulk transfer request. If it is set, it means: an error in any member of this set of transfers means that all the members should be cancelled.*
2. The switch breaks out the transfer requests and sends one to each creditor party.
   - *Each request contains the flag which says to the payee DFSP: Don't commit your funds to the customer until you receive final confirmation*

The sequence of Mojaloop actions: confirming the transfer

1. Each payee DFSP responds to the switch using the proposed syntax for: please inform me when you have agreed the transfer.
   - *This assumes that the proposed extension to the transfer response syntax has been implemented.*
2. If any payee DFSP responds negatively, then:
   1. The switch sends a cancellation request to all the payee DFSPs and they cancel the commit.
   2. The switch sends an error response to the payer DFSP
3. If all payee DFSPs respond positively, then:
   1. The switch sends to the payer DFSP, informing it that the transfer was successful.
   2. The switch sends to each payee DFSP, informing it that the transfer was successful and it can clear the funds to the payee account.
4. The switch sends confirmation to SSNAPP that the transfer has been completed, so that SSNAPP can inform its customer of the outcome.

Purchases from multiple suppliers

- A customer wants to make multiple purchases from a single marketplace: effectively, a cart containing items from a number of vendors.
- The customer makes a single payment for the total of the cart
- Formally, this is a multi-part transaction: if any part of the transfer fails, the other parts should still succeed.
- The accounts which will receive payment may belong to different DFSPs
- The payment should appear on a customer’s statement as a single payment to the marketplace

An outline of the desired process:

- The customer wants to make a (single) payment
- The payment is split into its component parts
- The customer is using a PISP application provided by SSNAPP, which we will call SSNAPP for the purposes of this discussion.
- Each payee DFSP quotes independently for effecting its part of the overall transfer
- Each payee DFSP postpones commitment of its part of the funds until it is notified by the switch that it may commit
- The payer DFSP is notified of the success of the overall payment

Additional quotation functionality

Any questions?