



# Mojaloop – ISO8583 ecosystem Integration

Sending payments from ATM and POS devices to Mojaloop systems

**Proof of Concept**



# Agenda

- Goals and Scope
- Ecosystem
- Design Decisions
- Current Design
- How It Works
- Community Contributions
- Next Steps



# Goals of the POC

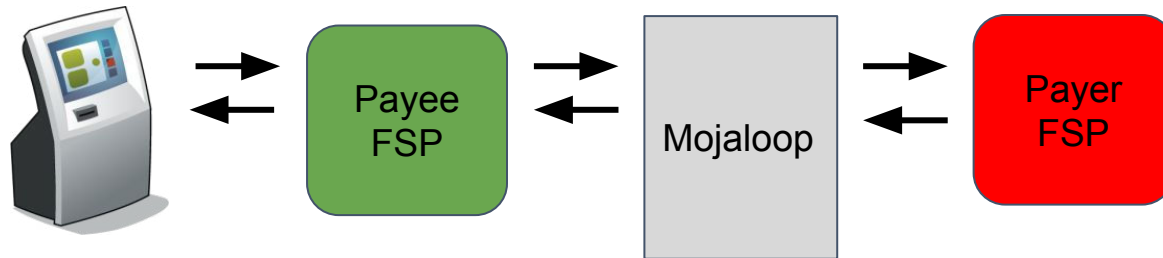
Demonstrate that integration of ISO 8583 based systems with Mojaloop could be done, based on the two use cases as per below:

- **ATM-Initiated Cash-Out**
- **Merchant-Initiated Merchant Payment Authorized on POS**



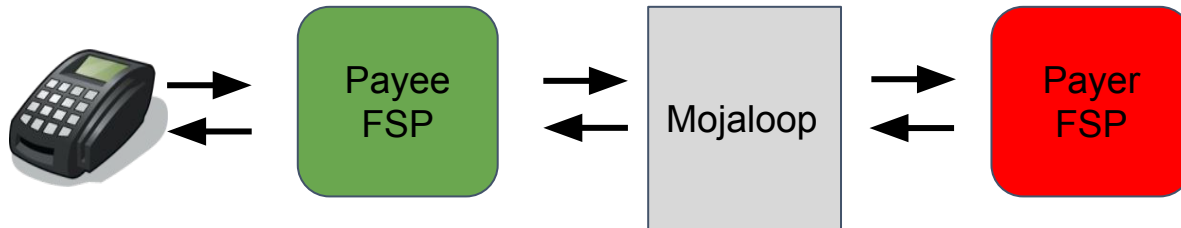
# Part 1 Scope - ATM-Initiated Cash-Out

1. ATM initiates a Cash-Out request from the customer account and the customer confirms the request by providing authentication (OTP) on ATM.
2. The customer pre-generates an OTP for cash-out and uses this OTP on ATM device to initiate ATM Cash-out.
3. The Payer FSP validates the OTP received in ATM-Initiated Cash-Out request for the validity of OTP as well as for authentication.
4. If the customer authentication via OTP is successful; then the customer's account will be debited at Payer FSP and ATM account maintained at Payee FSP will be credited.
5. As a result, the customer receives cash from ATM

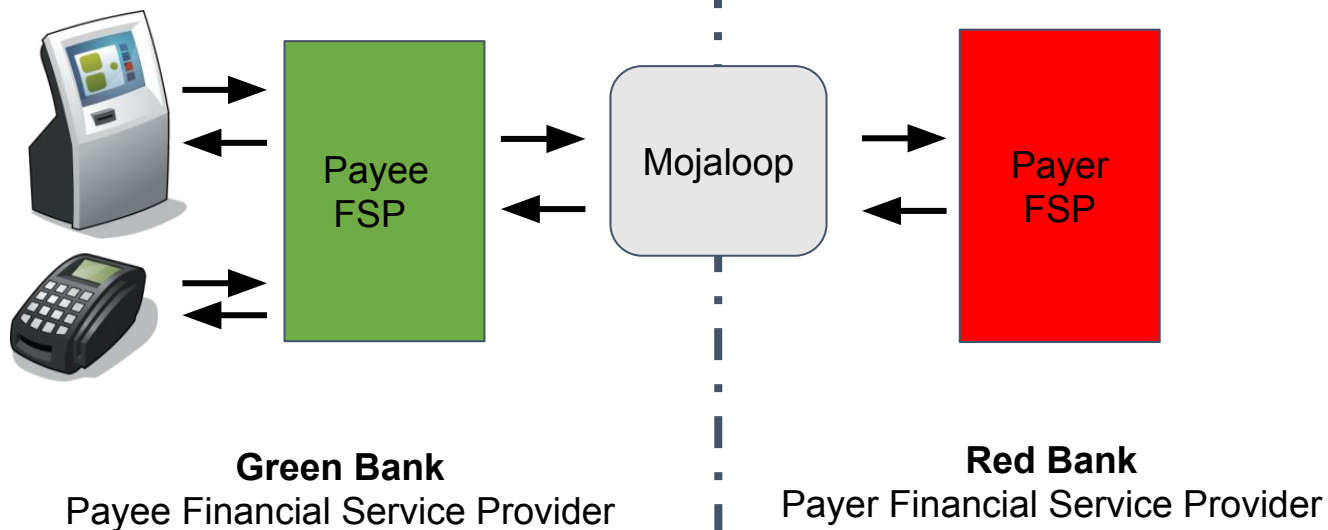


## Part 2 Scope – Merchant Payment Authorized on POS

1. The merchant initiates a merchant payment transaction using a POS device.
2. This device has the capability to capture the customer's authorization on POS instead of the customer's mobile device.
3. The authorization information captured in POS should be sent to Payer FSP to perform the authorization.
4. The merchant initiates a request to pay for the customer, and the customer reviews the payment request on POS and authorizes the payment by OTP on the POS itself.
5. The customer authentication information is sent from Payee FSP to Payer FSP for authentication by Payer FSP
6. If authentication is successful then transaction will be posted on Payer FSP and Payee FSP

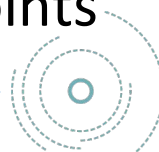


# Ecosystem



# Design Decisions

- Use the FSP Simulator for Payee FSP and Payer FSP Scenarios.
- ATM, POS and OTP Endpoints implemented on the FSP Sim.
- Terminal JSON to Open API conversion at the Endpoints



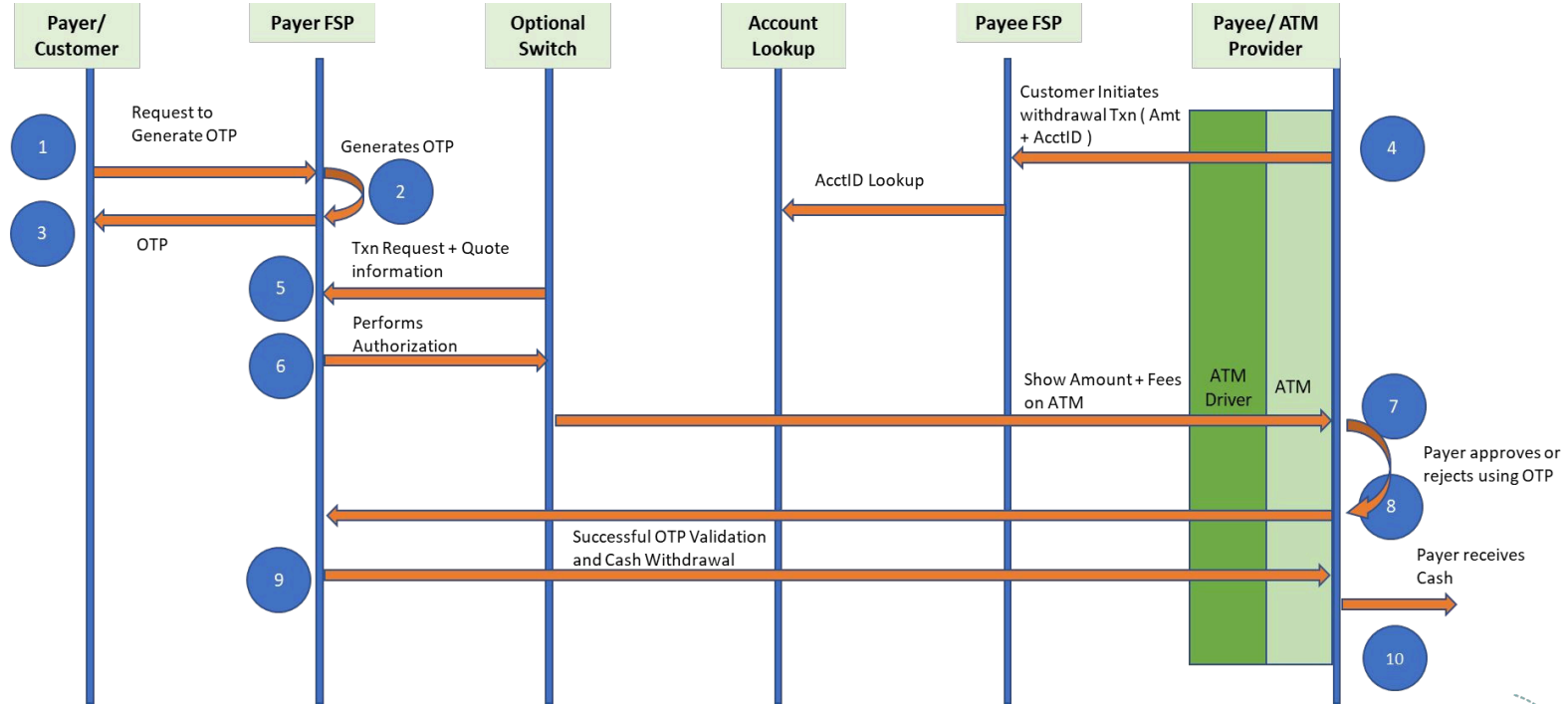
# Current Design

- ATM Endpoint to process transactions from ATM's.
- POS Endpoint to process transactions from POS and m-POS devices.
- OTP Endpoint to generate and validate OTP as per request from Originators.





# How It Works - ATM Initiated Cash Out

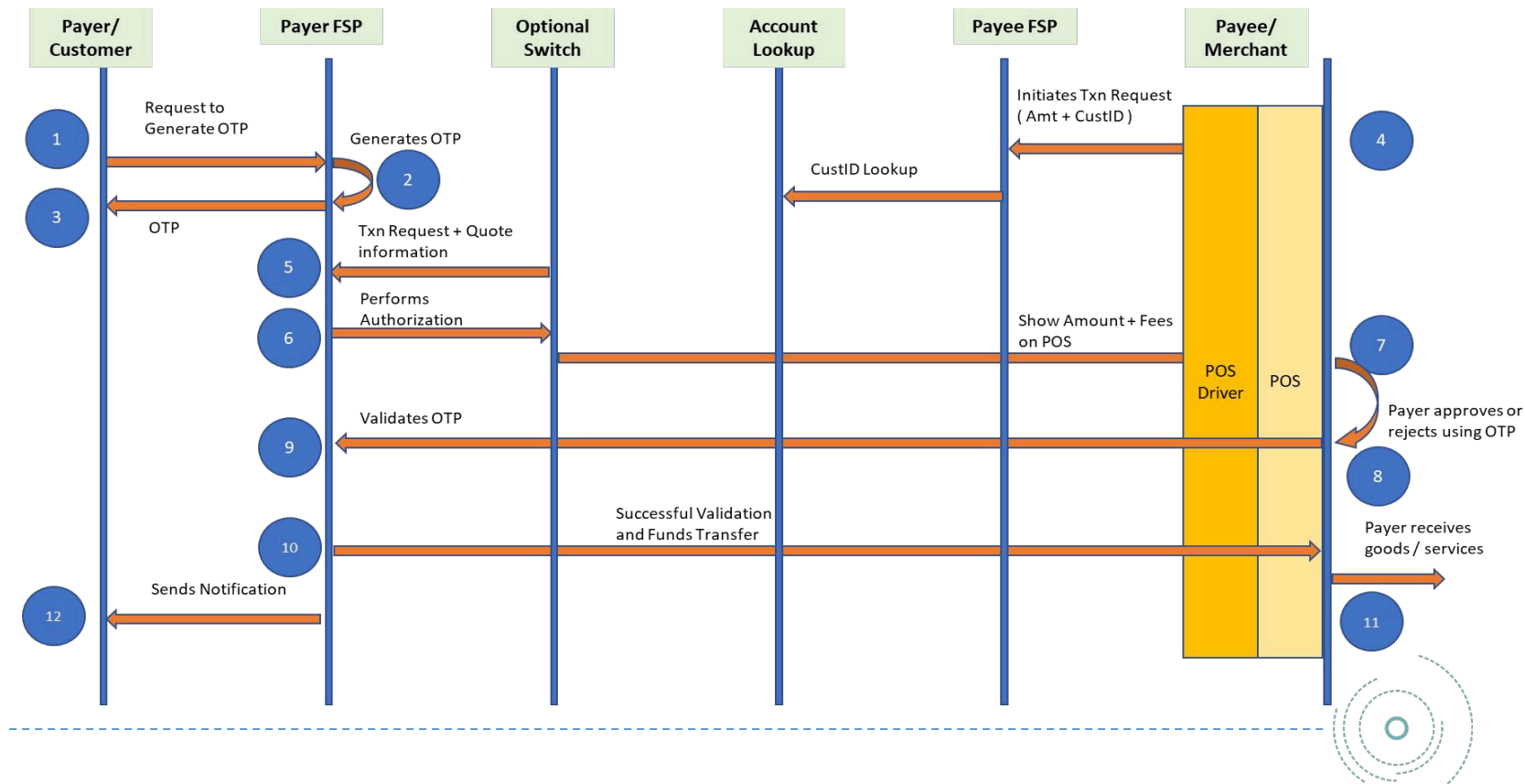


# How It Works - Steps

- Customer generates an OTP before initiating the transaction request from ATM.
- The customer initiates Mojaloop transaction on the ATM by entering their Mobile number and amount.
- The Customer will authenticate the transaction by entering pre-generated OTP
- Cash Out Request will be generated by ATM Driver in NDC protocol.
- This will be sent to the ATM Endpoint, where it is converted to Open API call and will be sent to Mojaloop.
- Mojaloop will perform Account lookup and the transaction request will be sent to Payer FSP for authentication.
- The Payer FSP validates the transaction request and also calculate the Quote for the transaction.
- The calculated Quote will be displayed on the ATM for confirmation by the customer.
- Once confirmed by the customer, the transaction is sent to Payer FSP and cash is dispensed by ATM.



# How It Works - Merchant Payment Authorized on POS



# How It Works - Steps

- Customer requests for an OTP ( pre-generate OTP using mobile app/CMS).
- Merchant will initiate payment for the desired amount and Customer ID through POS device.
- The request from the device will be sent by the POS driver to the POS Endpoint and will be sent to Payee FSP in Open API.
- From there account lookup will be done and the request will be send to Payer FSP for authorization.
- The Payer FSP validates the transaction request and also calculates the Quote for the transaction.
- The calculated Quote will be displayed on the POS Terminal for confirmation by the Payee.
- The customer confirms the quote and authorizes the transaction with the OTP.
- Payer FSP receives the transaction, and funds will be sent to Merchant (Payee) FSP.
- Notification will be sent to Payer and Payee from respective FSP's.



# Community Contributions

## **ATM Endpoint**

- An Endpoint to process and convert ATM driver NDC/JSON messages from ATM to Open API.

## **POS Endpoint**

- An Endpoint to process and convert POS driver ISO/JSON messages from POS to Open API.

## **OTP Endpoint**

- An Endpoint to generate and validate OTP as per request from Originators.



# Candidate Future Work

- Produce production ready code for contribution to OSS
  - Unit tests
  - Documentation
- Develop generic ISO 8583 mapping service for ISO 8583 to Open API
  - Switch POS and ATM drivers to ISO 8583 and provide protocol mapper as OSS contribution





<https://github.com/mojaloop/terminal-integration>

