



MODUSBOX

Mojaloop DFSP Experience

Mojaloop Convening October 2020



Overview

One of our goals as ModusBox is to present solutions that help our customers to improve the experience of adopting Mojaloop; since we have accompanied them through the different stages in this process, that has helped us identify improvements and reduce time, effort, cost and frustration.

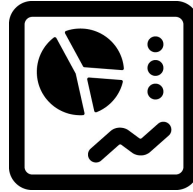
DFSP experience presents a solution that integrates different components and provide an UI to make it easy to manage, focused on the DSFSP and making the onboarding and general management a better experience



Hub benefits



Manages cost by reducing time and effort for both upfront onboarding and day to day operations of each connected DFSP

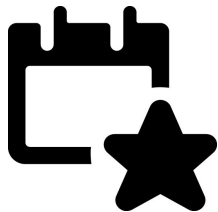


Quickly identify the source of issues:
Technical, Operational, Financial, etc.

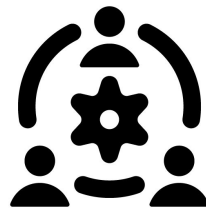


Remotely supportable

DFSP Benefits



Reduce time, effort and cost to onboard by providing templates and a wizard that automates the journey



Provide tools that brings operational efficiency, improving the user experience and reducing effort to complete different tasks independently



Deployment on DFSP side allowing them the service evolution. Local records to easily reconcile against Hub, other DFSP or your own system as needed

Product Roadmap

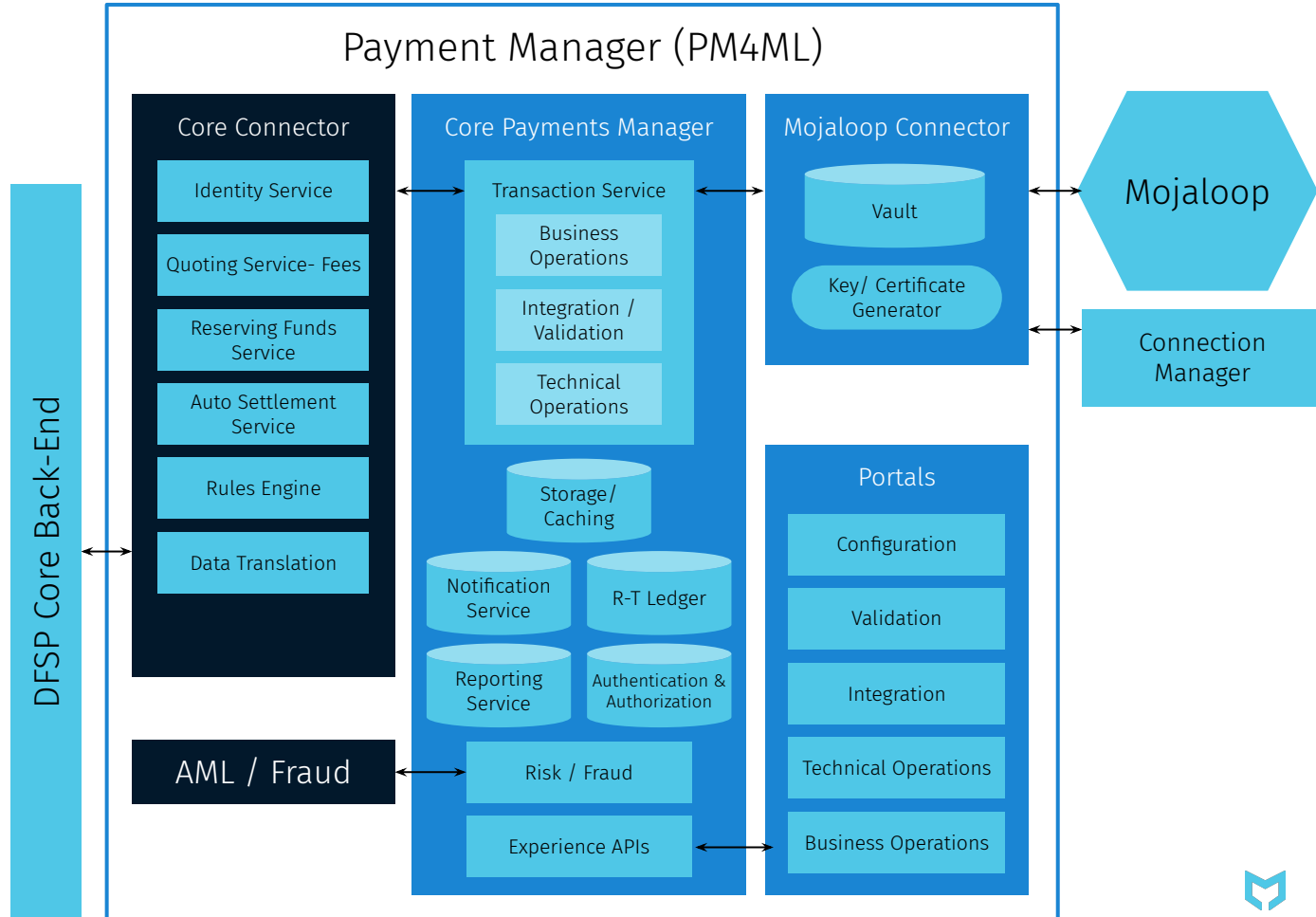


Architecture

Core Connector - Integrates your Core Banking Service to Payment manager acting as a "translator". It includes Standard templates - written in Java on Apache Camel - that can be deployed for major systems.

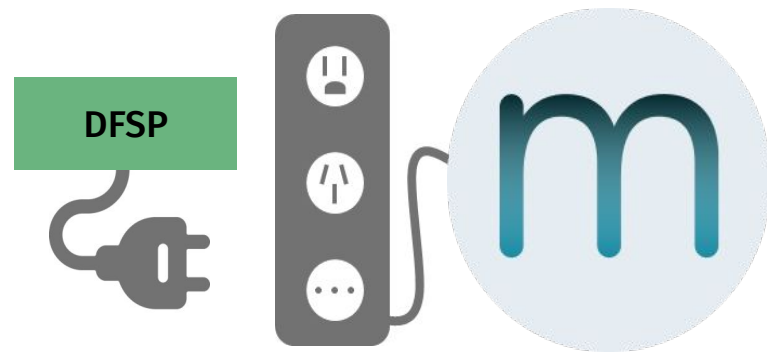
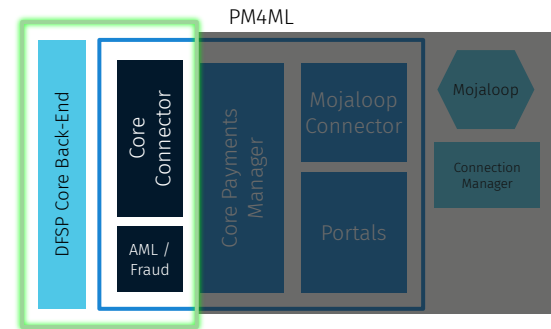
Core Payment Manager - The main transaction service has the ability to manage, monitor and report on different operational and technical processes from the Core and Mojaloop Connectors, and the associated movement of transfers and funds

Mojaloop Connector - simplifies and automates certificate creation and the configuration of the connections required to different environments. It also provides the interpretation of the Mojaloop API and the appropriate security controls - providing you with the confidence you are connecting to the switch using security best practices



Core Connector: Include everyone

- Any DFSP is able to connect their core banking system
- Standard templates available
- Payment Manager features accessible for everyone



Core Connectors - Current State

- Implemented an **Adapter Template** that integrates with both the **Mojaloop Connector** and **Payment Manager** in Apache Camel, Spring Boot
- Many common core system types already integrated e.g.:
 - ❑ T24
 - ❑ Mambu CBS
 - ❑ Musoni CBS
 - ❑ Huawei backend
 - ❑ Finflux
 - ❑ Fern CBS
 - ❑ Morakot
 - ❑ AyaPay
- Using Adapter Template as a reference, core specific adapters were created in 2-3 weeks with complete dfsp integrations taking an additional week.



Core Connectors - Roadmap

- Ability for DFSP to perform local technical and business validation ahead of connecting to a scheme specific sandbox
- Able to validate against different Mojaloop API or Scheme Specific versions
- DFSP able to perform business validation based on a set of pre-defined test cases
- Supported by integrating Testing Toolkit and other tools directly into the Payment Manager
- Provides tools to assist integrators / developers in creating and debugging new connectors
- Ease of deployment for Core Connectors that are already available



ML Connector: Evolving DFSP Connection Process

Original Process

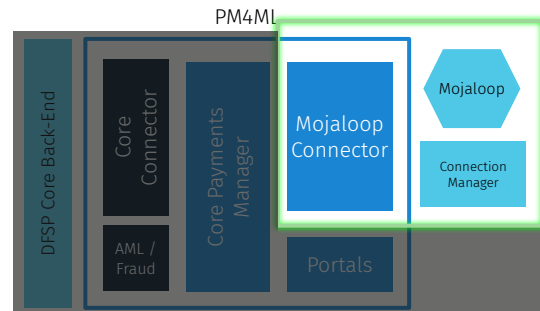
- No standardized channel for Hub-DFSP communication
- No real-time status updates
- Not pre-validation of files
- JWS certificate exchange among all parties taking a lot of time
- Multiple manual steps required
- Man in the middle risks while exchanging information

Connection Manager

- Centralized channel
- Role based access interface
- Certificate pre-validation (size, content, expiry, type, etc.)
- Status updates in real time
- Repository to share JWS among all DFSPs
- Guided process reduces time and effort
- Secure file sharing

Mojaloop Connector

- Includes all MCM features for DFSP
- Contains the Mojaloop SDK
- DFSP Hosted
- Stand alone
- Certificate files auto-generation
- Certificates and endpoint auto-configuration
- Hub CSR auto-signed
- Wizard to reduce time and effort to get DFSP connected to the Hub (a few clicks)
- Remote support and monitoring capability



Payment Manager Core: DFSP Self Management

01

Business

- Real time position and liquidity visualization
- Real time Transfers flow
- Track individual transfers for disputement resolution

02

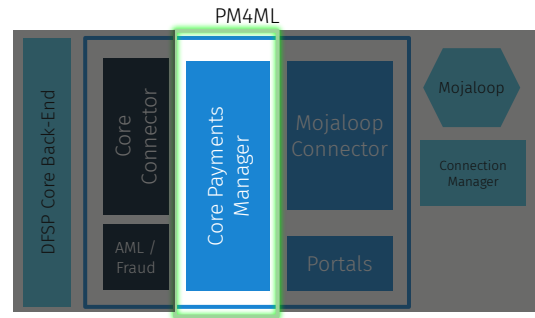
Financial

- Funds In - Funds Out option from UI
- Financial setup wizard
- Reconciliation Management

03

Technical

- Connection Wizard
- Connection health check dashboards
- Validate configurations
- Technical details for individual transfers to debug

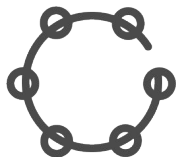


Our Progress

Functional user experience...



Ready to Engage!



Mojaloop Connector

Ready to start Beta.
Intentionally kept modular so
can be used with or without
the rest of
Payment Manager



Banking Core Connectors

Being used in UNCDF projects.
With templated approach
it's easy to create
connectors for
new Banking Cores.



Payment Manager and Portals

Looking for early adopters to
help validate usage scenarios.
Talking to new DFSPs about
how this can speed up
onboarding and simplify
operations.



Thank you!

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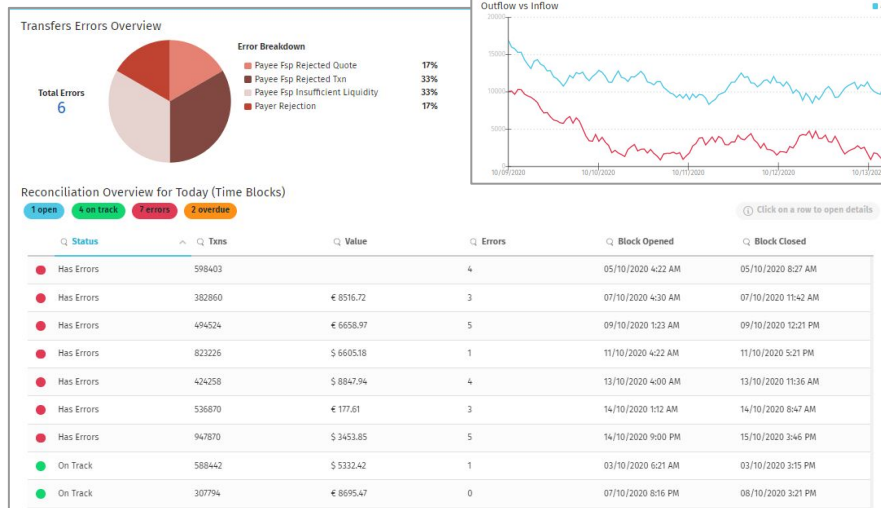
Appendix

UI screenshots overview

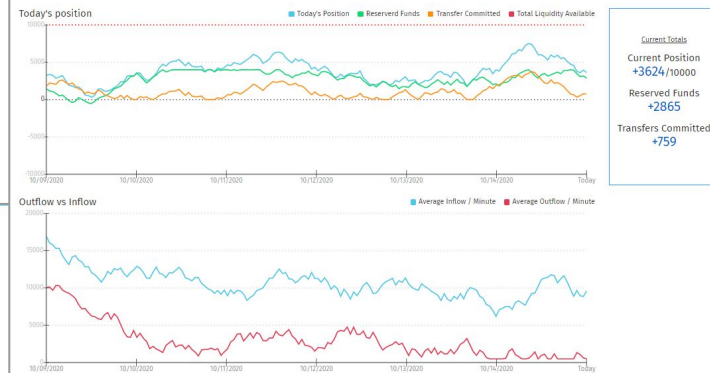


Business Overview 1/2

The Payment Manager business operational control center provides Liquidity Management control in a simple dashboard. Observe and monitor your position in real-time.



Business Dashboard



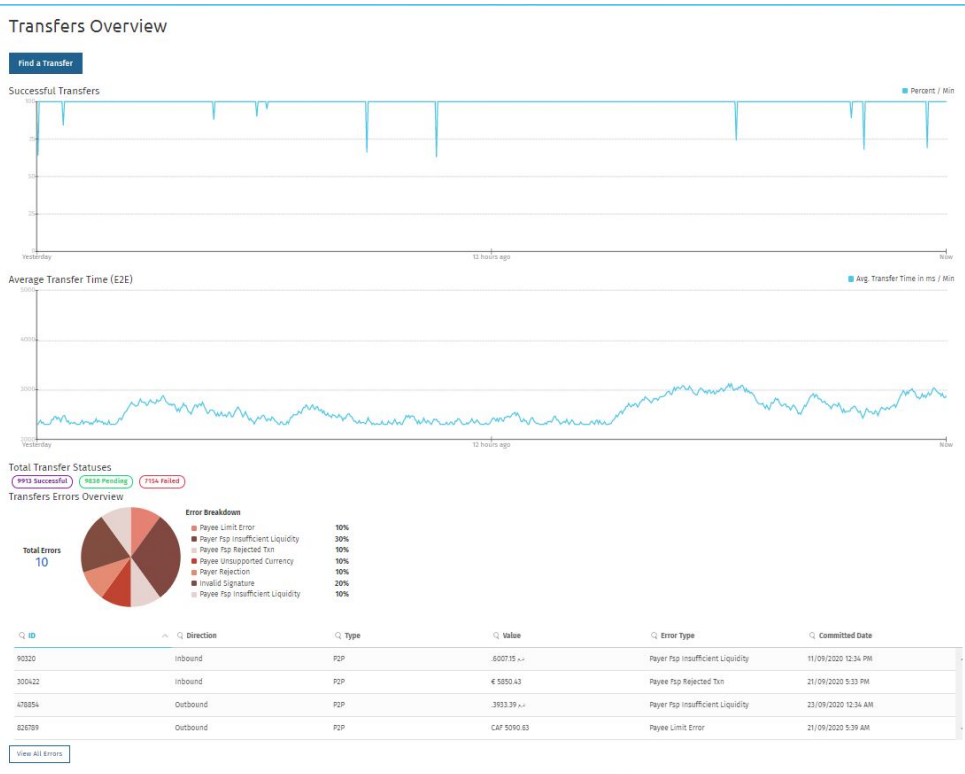
Business Overview 2/2

- Monitor reserved funds, transfers committed, liquidity available and position in real time
- Count of transactions to/from DSFSP
- Drill down transfers into the details



Monitoring Transfers 1/2

Payment Manager provides visualization of transaction details and the ability to query and observe overall status and single transfer details



Monitoring Transfers 2/2

- Real time dashboards visualization to monitor successful transfers and average time to be completed end to end
- Summary of detected errors to a quickly reaction when possible
- Transaction filtering option
- Single transaction technical details access for a level one debugging process from the UI



Connection Wizard 1/2

Prequalification Sandbox Setup

[< Back to overview](#)

Phase 1: Business Setup

● Tested 1/1 Steps

Endpoints

● Tested

CSR Exchange

● Tested

Certificate Authority

● Tested

Server Certificates Exchange

● Tested

JWS Certificates

● Tested

Done!

Phase 2: Technical Setup

● Tested 5/5 Steps

DFSP Server Certificates

Hub Server Certificates

✓ Submit

✓ This Certificate is valid.

View Details

🔗 Server Certificate

test-server.pem

✕ Remove File

View

Download

Certificate Info

Not Before

Mar 9, 2020 7:58 PM

Not After

Mar 9, 2021 7:58 PM

Subject

Common Name	Organization Name	Organization Unit Name	Country Code
payerfsp-server	kifya	payments	US

Issuer

Common Name	Organization Name	Organization Unit Name	Country Code
payerfsp-server-intermediate	kifya	payments	US

Root Certificate

test-root.pem

✕ Remove File

View

Download



Connection Wizard 2/2

- UI for Mojaloop Connector
- Summary of connection status against the different environments
- Certificate files auto-generation option
- Guide process, step by step for endpoint and certificate sharing



Technical Dashboard 1/2

The technical operational control dashboard of the Payment Manager provides metrics on all the health indicators of the system. Having easy access to these metrics means that technical operational control becomes proactive as potential problems can be picked up before they become real system problems

Technical Dashboard

Connection Health

Connected

Select Monitoring Time

3 Hours

Outbound Connection

Inbound Connection

ALS Service

Rate Avg Response Time



Quote Service

Rate Avg Response Time



Transfer Service

Rate Avg Response Time



Response Time

Scheme Fulfilment



Transfer Status

Success Rejection



Successful Fulfilment Time

Success Rejection

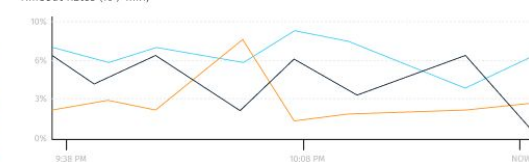


Select DFSP(s) to view Timeout Rates

- DFSP 1
- DFSP 2
- DFSP 3
- Select a DFSP

Reset Filters

Timeout Rates (% / min)



- Monitor from inbound and outbound connections between DFSP and the Hub
- Configurable time frame to get latest information
- Timeout rate check of your interactions with other DFSP
- Use metrics to fine tune the system to ensure the best operational efficiency

