



THE
APACHE™
SOFTWARE FOUNDATION



FINTECHeando

Real time Payments in Mexico using Apache Fineract

Agenda

- Introduction
 - Alberto Hernández / Me
 - About Us
- Building Blocks
 - Apache Fineract
 - Fineract CN
 - Mifos Payment Hub Enterprise Edition
 - CoDi
 - P2P
 - B2C
- Solution
 - Challenges
 - Our requirements
 - Time to Market
 - Project Management
 - Technical constraints
 - Risk and Compliance
 - Apache Fineract + Mifos PHEE + CoDi
- Questions and Answers
- Contact



Introduce Myself



Alberto Hernández / Me

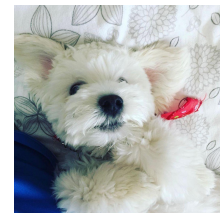
I have more than two decades of experience in the Information Technology area, mainly in financial services. I like to drive innovation by creating tech solutions within the Apache Fineract and Mifos ecosystem.

I have been using Apache Fineract and Mifos Payment Hub Enterprise Edition to bring high availability and reliable solutions for different financial entity types, like Banks, Investment Societies and Fintechs.

I have successfully overcome challenges related to aligning Open Source Technologies to the regulatory rules to strike a balance between innovation and compliance.

Our last reached goal was the certification of the Apache Fineract and the Mifos Payment Hub Enterprise Edition as a Contactless Payment Solution for the Real Time Payment Network with the Mexican Central Bank which is CoDi® for merchants.

I love spending time outdoors with my family and puppy, Toto.





About / Us

FINTECHeando is a Mexican company which develops software and our target are customers focused in the financial inclusion.

Our culture is based on transparency, respect, open communication, feedback, collaboration with our customers, employees and partners.

Our success is the result of the value generated to our customers.

The pillars of our stack are the Apache Fineract and the Mifos Ecosystem which can be used as independent modules or as an E2E (end to end) financial solution.



Apache Fineract

Apache Fineract is the modular open source software for solving financial requirements of cooperatives, investment societies, fintechs, neobanks, banks, ecommerces and governments.

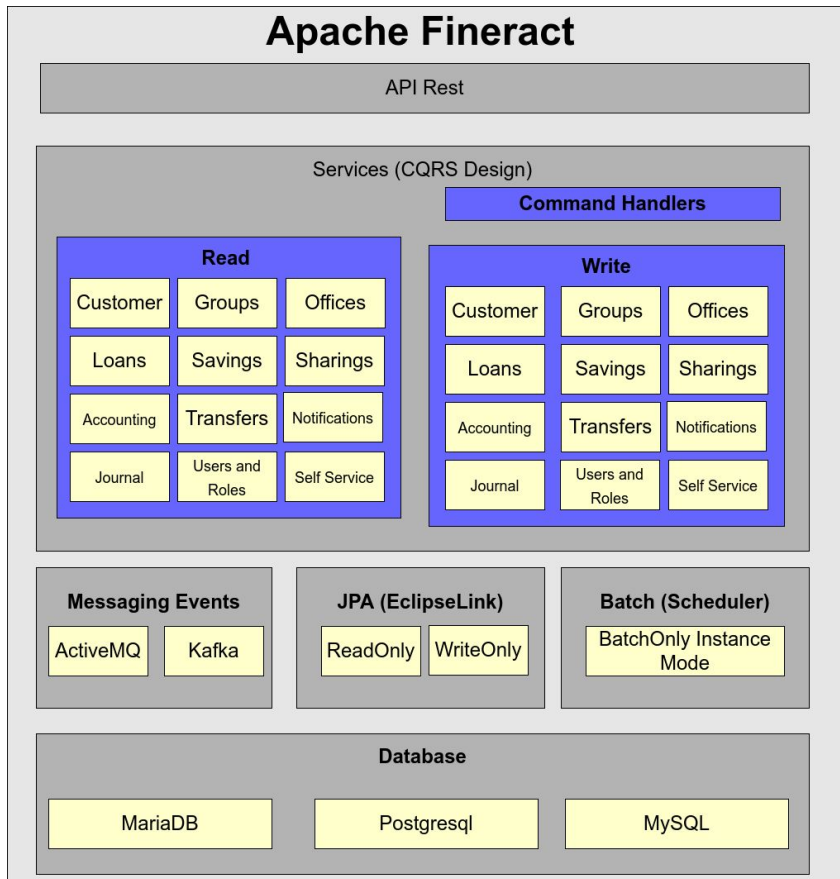
In our experience we have used it as a cost effective, time efficient and scalable solution for solving any challenge, either from the operational requirements or even the complex accounting rules of any Financial Institution.

For the end customers of the financial institutions they got access to financial inclusion which can help them to solve their financial stress and allowing the financial mobility.

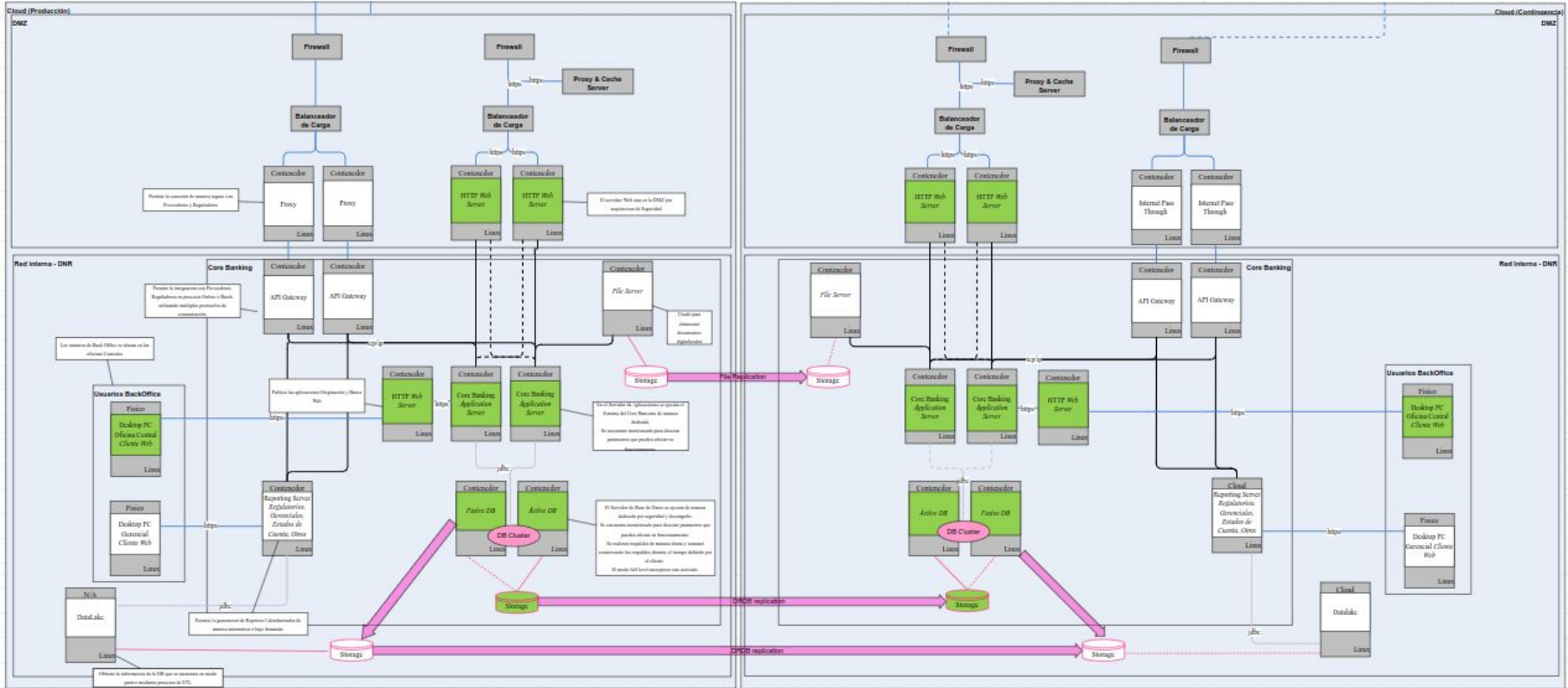


Building Blocks

Architecture Apache Fineract



HA Architecture Apache Fineract





Apache Fineract CN

Apache Fineract CN is a microservice software designed to encapsulate financial domains for integrating and orchestrating complex business rules which are required by medium or large institutions.

In our experience we have used it as a replacement of legacy core banking solutions running in Mainframe or Midrange platforms, it has been chosen by the transaction per second and API Rest integration capacities.



Mifos Payment Hub EE

Mifos Payment Hub is the component which connects Digital Financial Service Providers to Payment Networks. In our case, it connects Fineract 1.x and Fineract CN to SPEI® (Interbank Electronic Payment System) using CoDi® APIs. The SPEI® Network and CoDi® APIs are managed by the Mexican Central Bank (BANXICO).

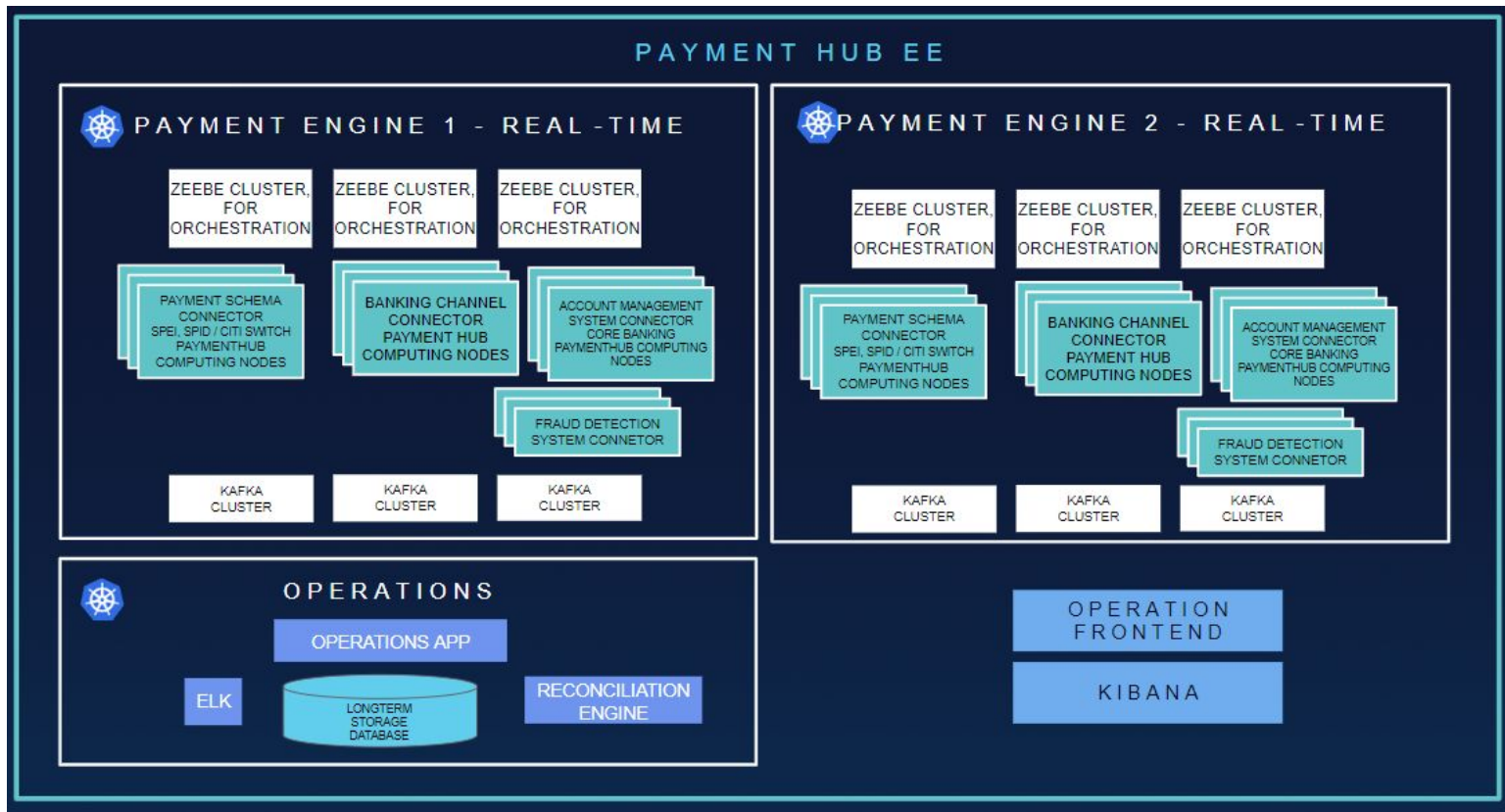
The Mifos Payment Hub communicates with these Fineract versions via REST APIs. To support the calls and actions our deployment has taken the out of the box versions of Fineract/Fineract CN.

The main ingredient (secret sauce) for this connection are the HTTP connectors orchestrated by Camunda (BPM).

Mifos Payment Hub EE



HA Architecture - Mifos Payment Hub EE





Solution

Challenges

Process to be participant (Banxico certification)

- Our requirements
- Time to Market
- Project Management
- Technical constraints
- Risk

and

Compliance

Reference:

<https://www.banxico.org.mx/sistemas-de-pago/codi-cobro-digital-banco-me.html>

CoDi®



CoDi® is a software platform developed by the Mexican Central Bank (BANXICO) which is used for digital payments in real time using QR and NFC over the existing SPEI® infrastructure which is the Interbank payments platform also developed by BANXICO using P2P connections.

Banks and now FINTECHs are participants and BANXICO is the hub or coordinator

Reference:

<https://www.banxico.org.mx/sistemas-de-pago/codi-cobro-digital-banco-me.html>

CoDi® requirements

- Simple enrollment process
- Transactions must be reflected in real time
- Free / No fees
- NFR
 - Availability 24/7 - 365 days
 - Speed / Time response in less than 5 seconds
 - High availability and resilience
- Process to be participant (Banxico certification)

Reference: <https://www.banxico.org.mx/sistemas-de-pago/codi-cobro-digital-banco-me.html>

How CoDi® works?

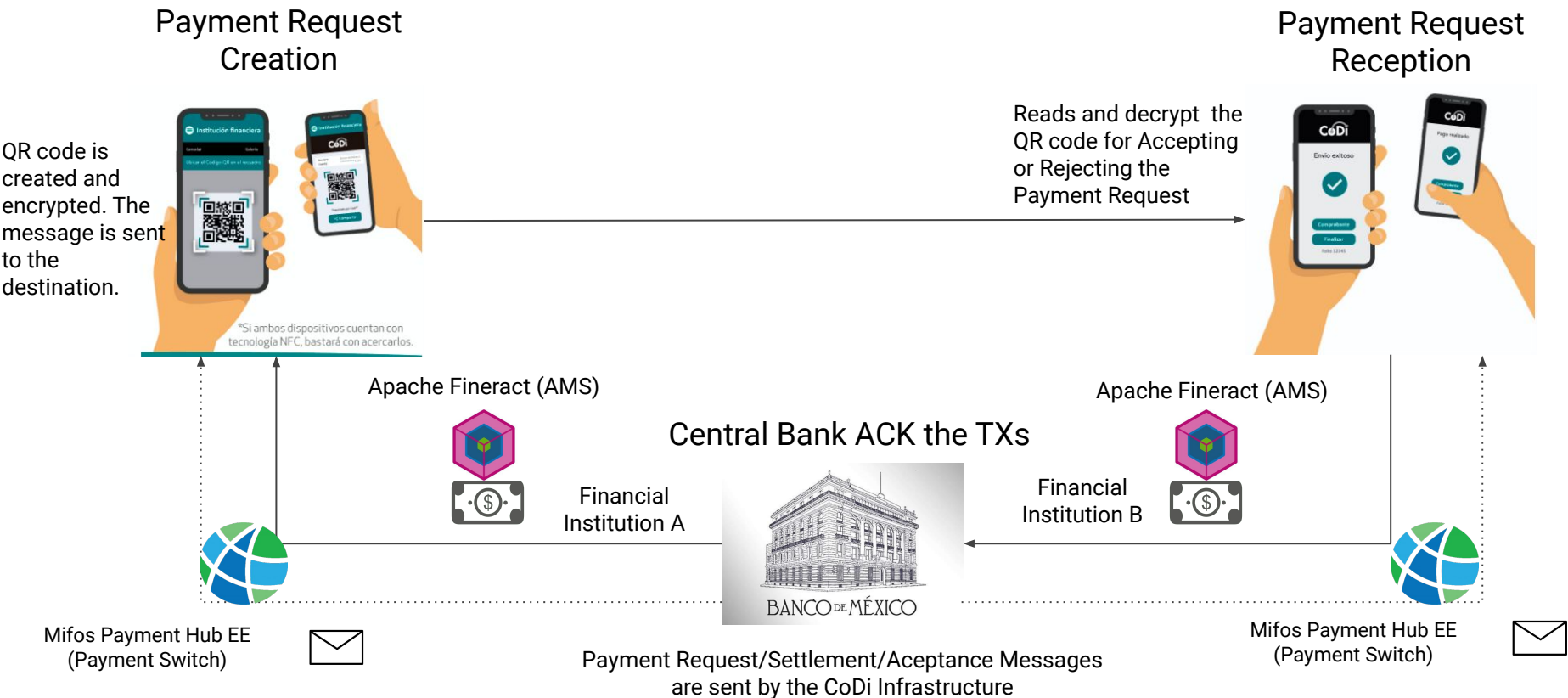
Using QR technology (Quick Response, for its acronym in English) the operation data is stored within a square, which allows us to store a large amount of information, then be read and displayed from an mobile application. This code can be static in an establishment or it can be generated in each transaction.

NFC (Near Field Communication) technology is based on the transmission of data and information, simply by bringing two mobile devices closer to each other.



Reference: <https://www.banxico.org.mx/sistemas-de-pago/codi-cobro-digital-banco-me.html>

CoDi® - P2P



CoDi® - B2C

Payment Request Creation

QR code is created and encrypted. The message is sent to the destination On Demand or Scheduled. The Smartphone, the Printed Ticket, e-Mail or Web Page are now the PoS in real time and no extra fee over the service/product price.



Payment Request Reception

Reads and decrypts the QR code for Accepting or Rejecting the Payment Request



Apache Fineract (AMS)

Central Bank ACK the TXs

Apache Fineract (AMS)

Financial Institution A

Financial Institution B



Payment Request/Settlement/Acceptance Messages are sent by the CoDi Infrastructure

Mifos Payment Hub EE (Payment Switch)

Mifos Payment Hub EE (Payment Switch)

CoDi® benefits

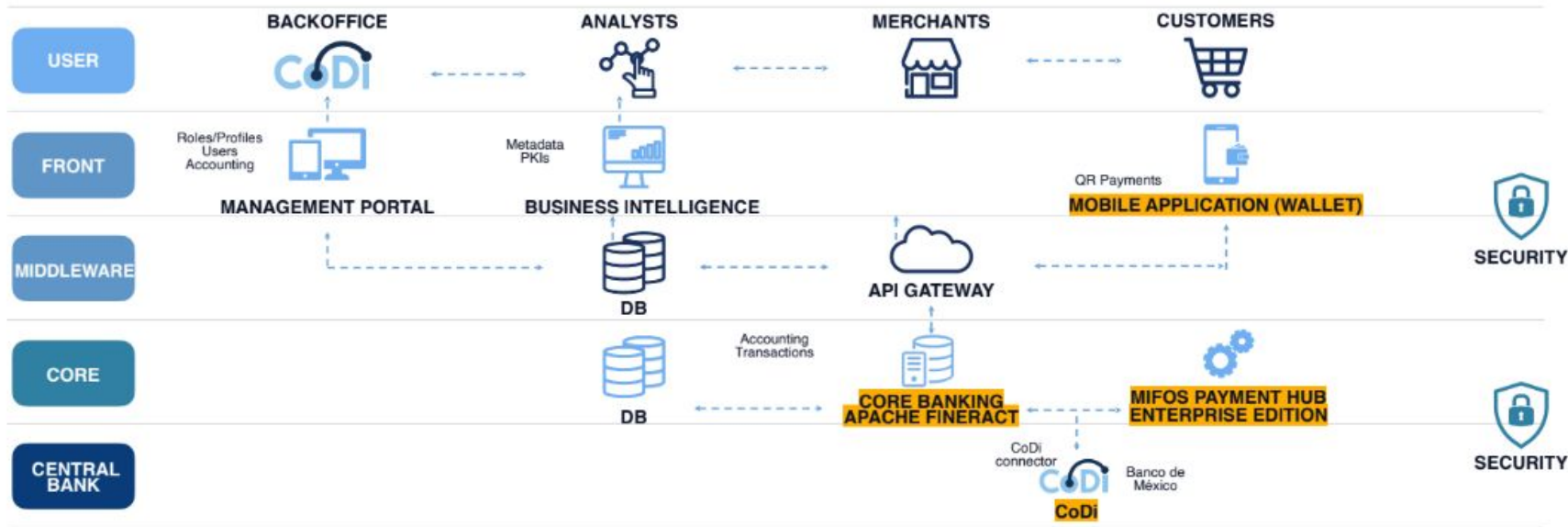
- Costs are reduced due no fees and no relocation expenses
- Agile Transactions
- More secure reducing risks like cash management, cash cloning, frauds
- Promotes financial inclusion to be easy to implement and use for micro/small businesses, merchants and general public
- Banxico issues an electronic receipt (CEP) and It can be traceable

Reference:

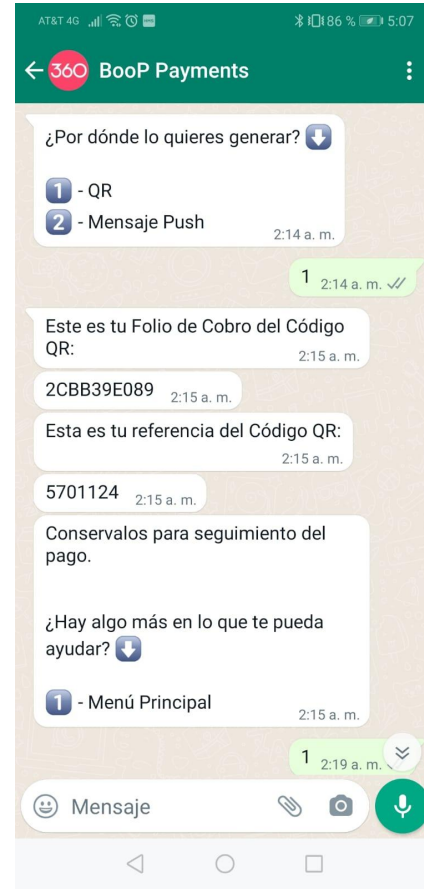
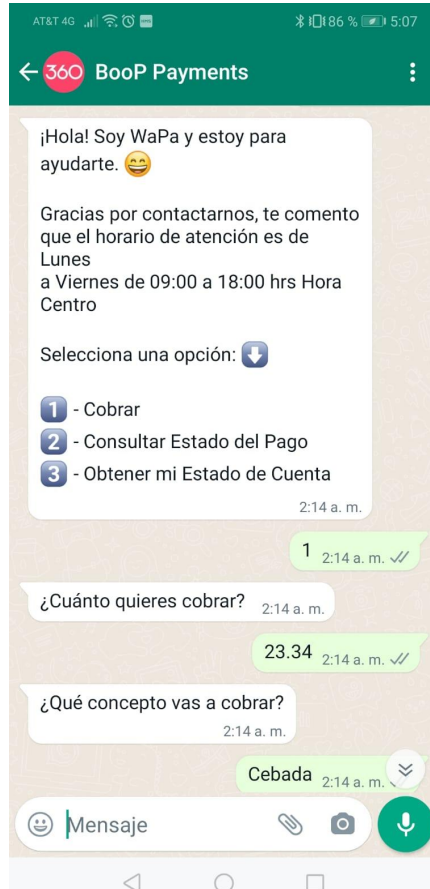
<https://www.banxico.org.mx/sistemas-de-pago/codi-cobro-digital-banco-me.html>

Apache Fineract + Payment Hub Enterprise Edition + CoDi®

Ecosystem CoDi + Mifos Payment Hub EE



QR Payment request by WhatsApp



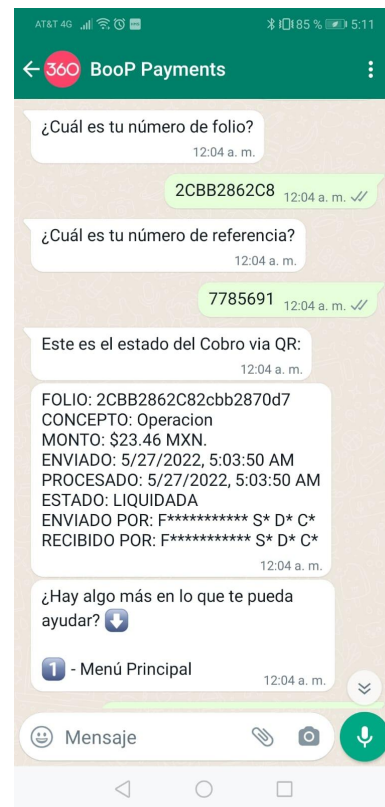
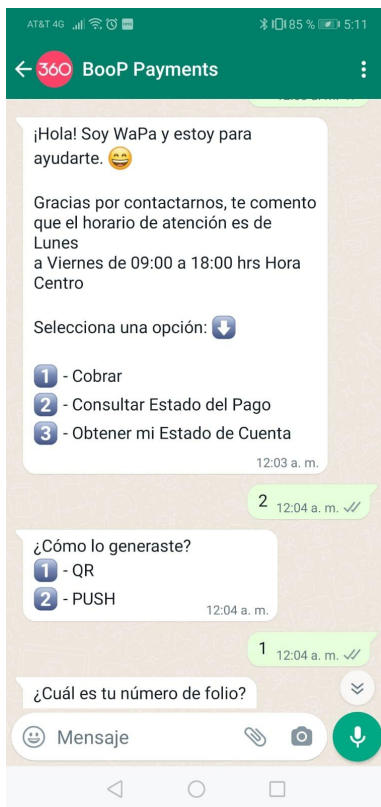
QR Payment received by WhatsApp and pay with CoDi®



Scan & Pay



QR Payment status using WhatsApp





Questions & Answers

Contact



Apache Fineract
<https://fineract.apache.org>

Mifos
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