

*The Mojaloop Foundation believes that everyone benefits from an economy that includes everyone.*

## Level One Design Principles

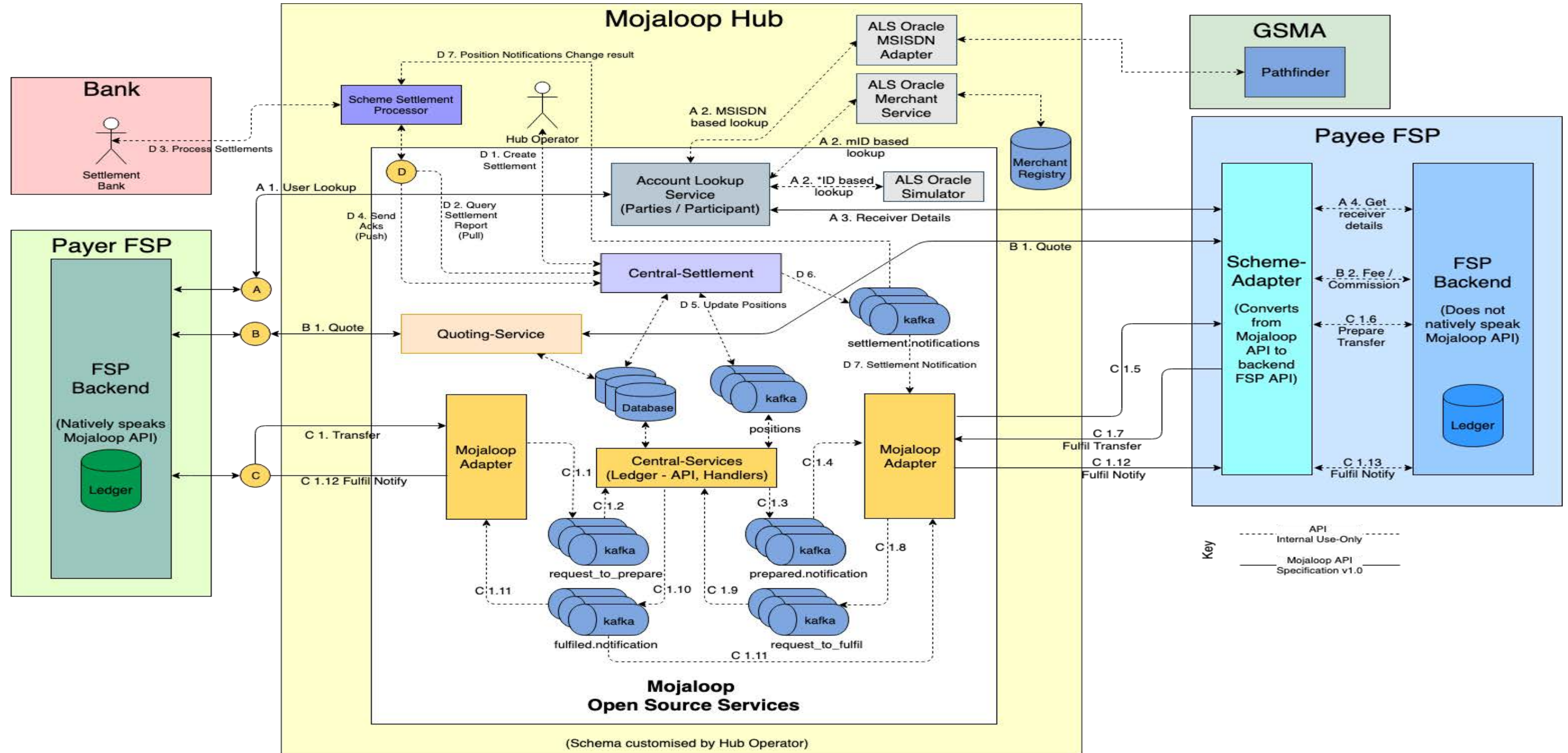
- Open Loop
- Push Payments
- Immediate Clearing
- Net Settlements
- Irrevocable

## Mojaloop Links

- <https://mojaloop.io/decks>
- <http://mojaloop.io/slack>
- <https://community.mojaloop.io/>
- <https://mojaloop.io/documentation/>
- <https://mojaloop.io/>
- <https://community.mojaloop.io/c/events/community-events/11>
- <https://Mojaloop.io/vote>

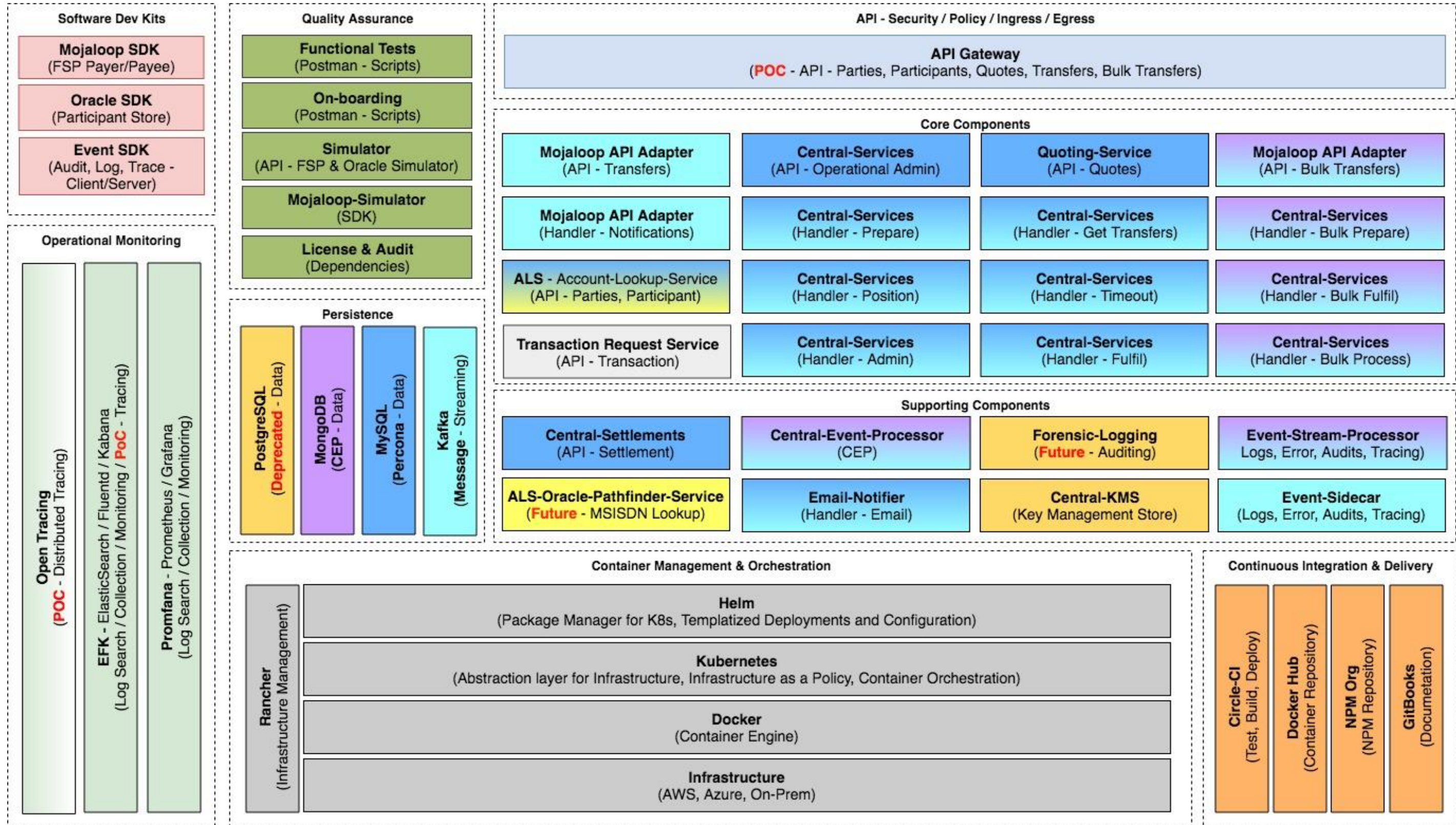
Phase 4 - Program Increment Schedule				
<b>Phase 4: PI 11</b>	7/20/2020	7/24/2020	5 days	<i>Remote</i>
11.1	7/27/2020	8/9/2020	2 weeks	
11.2	8/10/2020	8/23/2020	2 weeks	
11.3	8/24/2020	9/6/2020	2 weeks	
11.4	9/7/2020	9/20/2020	2 weeks	
11.5	9/21/2020	10/4/2020	2 weeks	
11.6	10/5/2020	10/18/2020	2 weeks	
<b>Phase 4: PI 12</b>	10/19/2020	10/22/2020	3.5 days	<i>Zanzibar</i>
12.1	10/26/2020	11/8/2020	2 weeks	
12.2	11/9/2020	11/22/2020	2 weeks	
12.3	11/23/2020	12/6/2020	2 weeks	
12.4	12/7/2020	12/20/2020	2 weeks	
12.5	12/21/2020	1/3/2021	2 weeks	
12.6	1/4/2021	1/24/2021	3 weeks	
<b>Phase 4 Wrap-up</b>	1/25/2021	1/28/2021	3.5 days	<i>Johannesburg</i>

# System Diagram

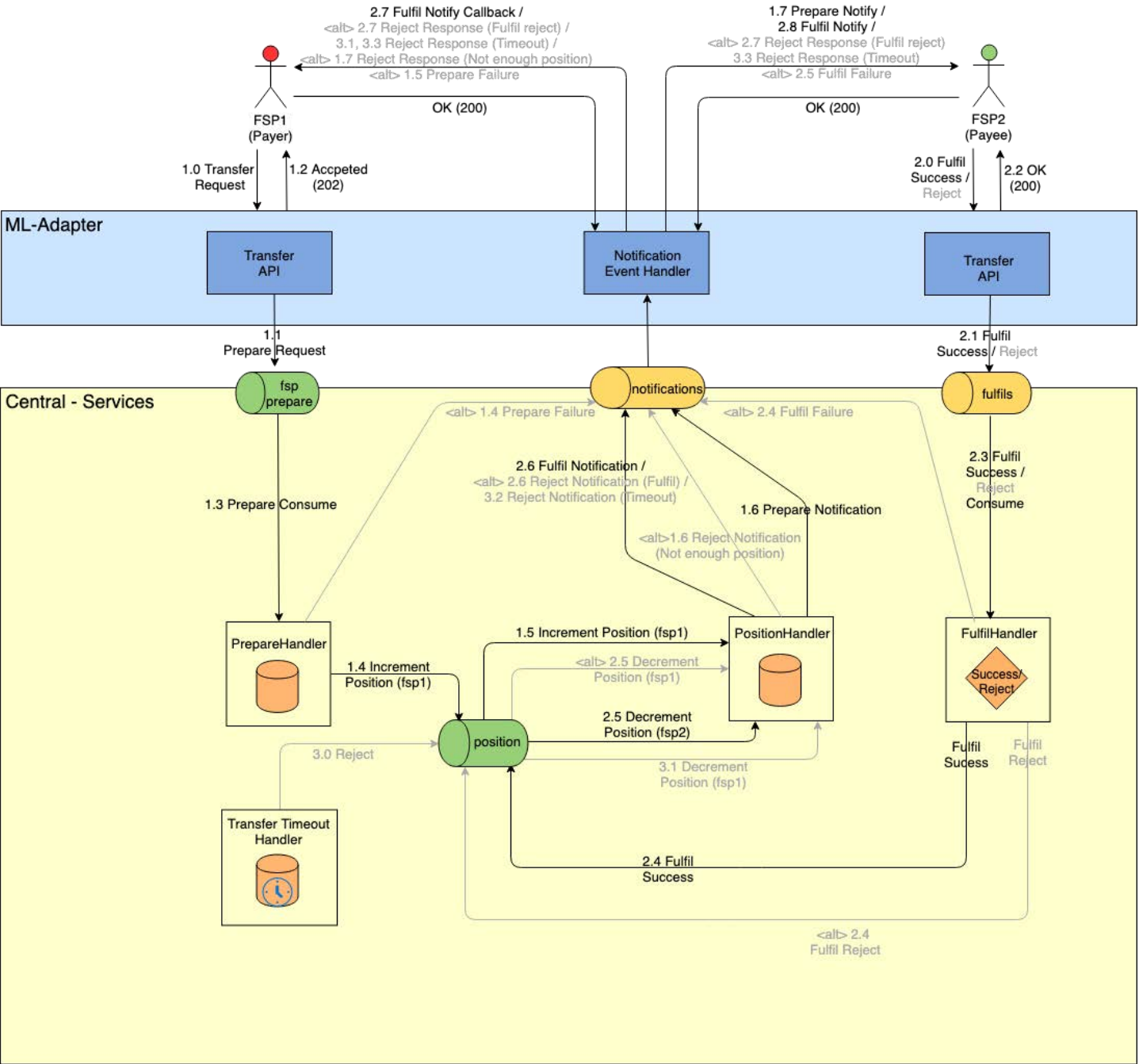




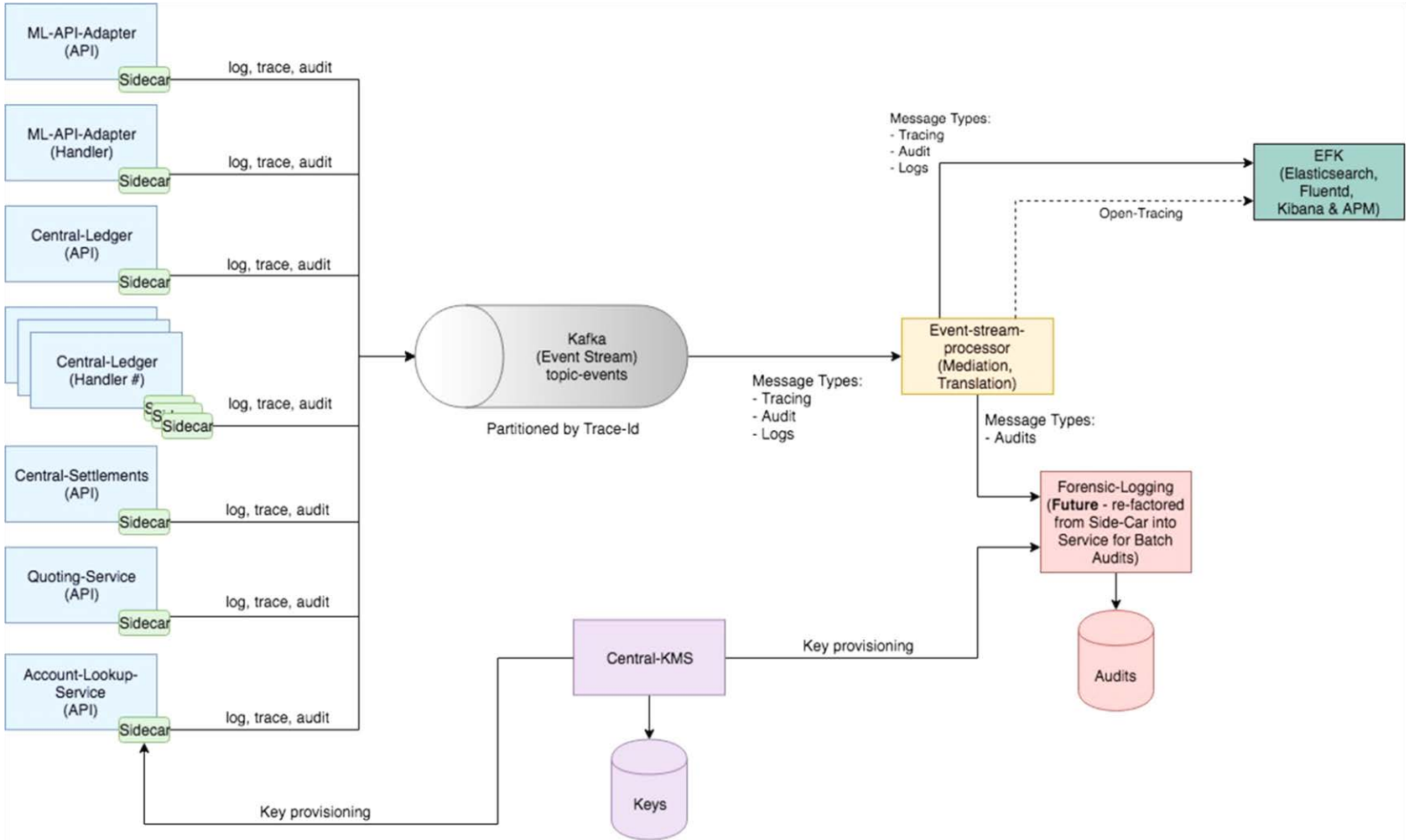
# Component Diagram



# Transfers Architecture



# Event Framework

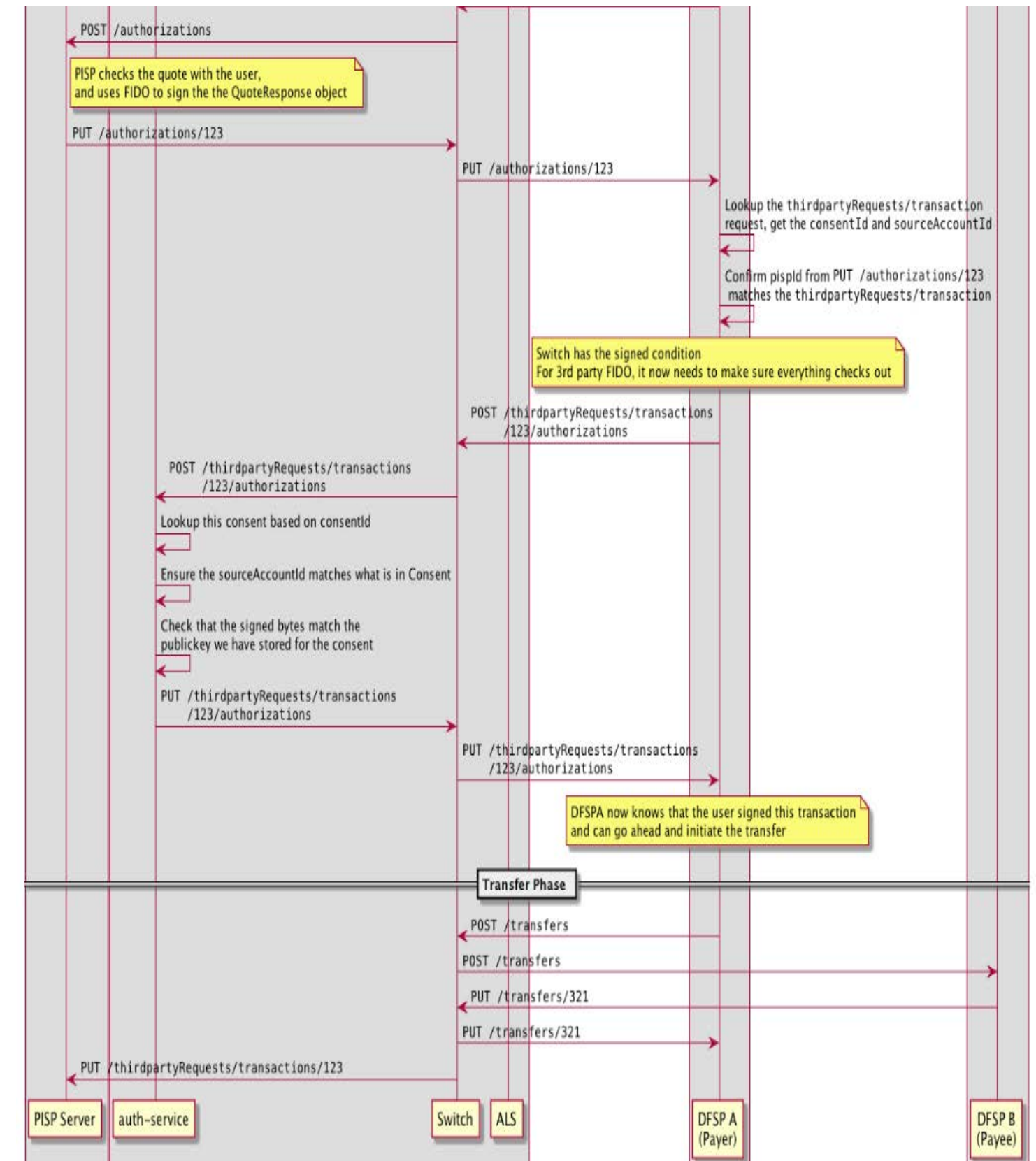
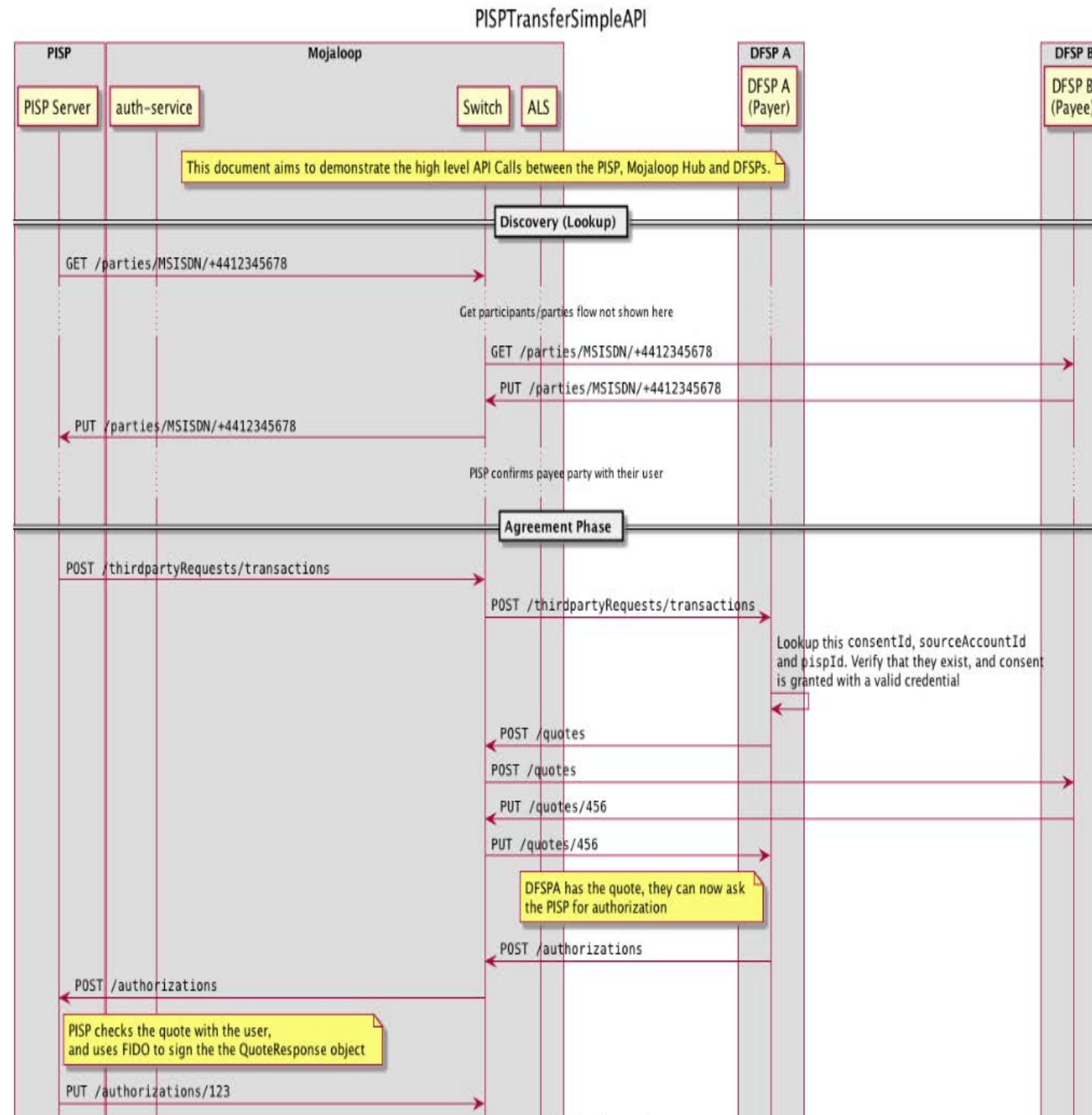




# PISP Transfers

## Transfer

Edit the transfer flow .puml files here: [PISP Transfer Api Calls Detailed](#)



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Presentations
readme.md
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# PI 11 Mojaloop Community Event Agenda

July 20th - 24th

Please reiew some relevant links:

- Discourse: <https://community.mojaloop.io>
- Slack self sign-up: <http://mojaloop.io/slack>
- Register to participate: [https://zoom.us/webinar/register/WN\\_2y\\_nO3WkTKa8vm236L3AKQ](https://zoom.us/webinar/register/WN_2y_nO3WkTKa8vm236L3AKQ)
- Pre-Read Materials are located [here](#)
- Speaker prep [recording](#) information and [template](#)
- Presentation [decks](#) and recordings can be found by clicking on the presentation session.

## Agenda

### DAY ONE - Introduction

Time (UTC/GMT)	End	Duration	Monday: July 20, 2020	Description and Links	Track	Speaker
1:00 PM	2:50 PM	1:50	Introduction and Business Overview of L1P and Mojaloop * <a href="#">Session discussion thread</a>	Level One Project Mojaloop Overview API Specification	Business	Matt Bohan, Miller Abel, Michael Richards
2:50 PM	3:00 PM	0:10	Break			
3:00 PM	4:00 PM	1:20	Mojaloop Technical Overview * <a href="#">Session discussion thread</a>	Component Overview Mojaloop Technical Details & Installation	Technical	Miguel de Barros, Sam Kummary
4:00 PM			Done			

## DAY TWO - Foundation, Community and Business Updates

Time (UTC/GMT)	End	Duration	Tuesday: July 21, 2020	Details	Track
11:00 AM	11:20 AM	00:20	Mojaloop Foundation Updates * <a href="#">Session discussion thread</a>	Mojaloop Foundation Updates	Community
11:20 AM	11:40 AM	00:20	Community Updates * <a href="#">Session discussion thread</a>	Community Updates	Community
11:40 AM	12:00 PM	00:20	Driving Financial Inclusion from the Middle: How Mojaloop can support DFSPs in reaching the last mile * <a href="#">Session discussion thread</a>	Glenbrook Partners and the Gates Foundation will provide overview of the changes to account onboarding due to COVID-19. Within that, they will explain the regulatory perspective on remote account onboarding and collaborative customer due diligence, concluding with applied examples of network participation in account onboarding, and opportunities for	Advocacy



				Mojaloop.	
12:00 PM	12:10 PM	00:10	Break		
12:10 PM	12:50 PM	00:40	Cross Network Report Out * <a href="#">Session discussion thread</a>	Report on progress on development of the cross-border proposal during the current PI and propose possible objectives for the next PI	Business
12:50 PM	1:20 PM	00:30	Battle of the Titans: PIX – the new Brazilian instant and interoperable payment infrastructure * <a href="#">Session discussion thread</a>	How customer experience and the business model can be improved by an instant and interoperable payment infrastructure such as the Brazilian PIX and explore why WhatsApp Pay has been suspended by the country's Central Bank and antitrust authority Cade.	Business
1:20 PM	1:50 PM	00:30	Ssnapp * <a href="#">Presentation</a> * <a href="#">Discussion</a>	Supporting multi-part payments in Mojaloop	Community
1:50 PM	2:20 PM	00:30	#40Days40FinTechs Initiative Lessons * <a href="#">Session discussion thread</a>	#40Days40FinTechs Initiative report and Lessons from the community.	Community
2:20 PM	2:30 PM	00:10	Break		

	2:30 PM	3:30 PM	01:00	Settlement and Controls * <a href="#">Session discussion thread</a>	Describe Settlement proposals, Logical vs Physical Settlement, Controls in place to prevent liquidity issues and Managing the Financial reconciliation - DFSP and Physical movement in this PI and outline proposals for work in the next PI.	Business
				Protecting biometrics at the	Biometric systems have gained traction as the future of global identity, but legacy systems are plagued by data breaches and synthetic identity fraud - resulting in billions in losses each year. Trust Stamp's patented technology creates unique hashed-tokenized identities from any modality or source of identity data to facilitate secure, interoperable identity proofing - anywhere in the world, online and	

3:30 PM	4:00 PM	00:30	edge of the network * <a href="#">Session discussion thread</a>	offline. Trust Stamp would like to talk to Mojaloop community about their work in helping a bank identify account takeover fraud attempts in the US using face biometrics to reauthenticate, how they use a shared greylist to help a consortium track via greylisting & how the underlying technology protects biometric data at the edge of the network as part of Mastercard's inclusive ID vaccination program.	Business
4:00 PM			Done		

DAY THREE - Technical Updates

Time (UTC/GMT)	End	Duration	Wednesday: July 22, 2020	Details	Track	Spe
				Provide an update on Mowali implementation and its next steps, with		



	11:00 AM	11:30 AM	00:30	Mowali Update * <a href="#">Session discussion thread</a>	some learnings and questions that could interest the community: how to perform DFSP onboarding at scale, how to build efficient operations. As usual, the presentation will end with Mowali's expectations from future OSS developments.	Technical	Barthel Sonko, Combe John M Ssebur Oscar C
	11:30 AM	11:50 AM	00:20	Versioning Workstream * <a href="#">Session discussion thread</a>	Updates from the versioning workstream. Including (1) Mojaloop Semantic Versioning + LTS, (2) Applying Security Patches to Mojaloop Deployments, and (3) Zero Downtime Deployment POC	Technical	Lewis E Sam Ku Matt de
					A joint test environment for Mobile		

	11:50 AM	12:20 PM	00:30	GSMA Interoperability Test Platform * <a href="#">Session discussion thread</a>	Money API and Mojaloop. The GSMA Inclusive Tech Lab worked in several projects about interoperability from reports to the Interoperability Test Platform, launched on July 1. We will show the latest updates and demo the platform to the community, describing how anyone can start contributing to improve the platform and add new use cases and features.	Technical	Anant Nautiyal Bruno I
	12:20 PM	12:30 PM	00:10	Break			
	12:30 PM	1:30 PM	01:00	OSS Core team: PI-10 Report-out * <a href="#">Session discussion thread</a>	OSS core team updates in PI10 - FSPIOP API v1.1 changes, Releases & Maintenance Community Updates	Technical	Sam Kl Miguel Barros, Mothila Valenti Genev, Ramac
				Modusbox			

1:30 PM	1:50 PM	00:20	Community Contributions * <a href="#">Session discussion thread</a>		Community	Kent Br Paul Ba
1:50 PM	2:20 PM	00:30	Code Quality Workstream * <a href="#">Session discussion thread</a>	Updates on ongoing work in the Code Quality + Security Workstream. Focussing on (1) Data Protection + Privacy, (2) Establishing Mojaloop Standards, (3) HSM Design + Integration Progress and (4) Ongoing Security + Code Maintenance	Technical	Godfre Kutume Lewis E Victor ,
2:20 PM	2:30 PM	00:10	Break			
2:30 PM	3:00 PM	00:30	Payment Initiation Service Providers (PISP) * <a href="#">Session discussion thread</a>	Report out for PI 10, direction for continued work in the PISP workstream.	Technical	Lewis E Geewa
3:00 PM	3:30	00:30	Testing Toolkit, CCB Updates * <a href="#">Session</a>		Technical	Michae Richard Kumma



	PM		<a href="#">discussion thread</a>			Vijay G Georgi Logoda
3:30 PM	4:00 PM	00:30	Mifos Payment Hub EE and Lab Update * <a href="#">Session discussion thread</a>		Technical	Edward Istvan Kristof
4:00 PM			Done			

DAY FOUR - Technical Updates and PoC Presentations

Time (UTC/GMT)	End	Duration	Thursday: July 23, 2020	Details	Track	Spea
11:00 AM	11:40 AM	00:40	Mojalop Fraud Risk Management Playback * <a href="#">Session discussion thread</a>	Review the progress and status of the following 3 activities in our workstream: 1. Mojaloop Hub Operator and Digital Financial Service Provider FRM capability assessment 2. FRM vendor shortlist and features comparison 3. Feasibility	Technical	Justus Ortlep Graham Pamp

				study report of a Mojaloop rules engine as either a developed or licensed solution (in collaboration with ModusBox)		
11:40 AM	12:00 PM	00:20	OSS FRM * <a href="#">Session discussion thread</a>		Technical	Greg McCo
12:00 PM	12:40 PM	00:40	Mojaloop - Recommended Architectural Practice for Infrastructure Deployment - An Open Source Toolset * <a href="#">Session discussion thread</a>		Technical	Steve Bristov José Morer
12:40 PM	1:20 PM	00:40	Bulk Payments * <a href="#">Session discussion thread</a>		Technical	Sam Kumm Rajiv Mothi Stever Odera
1:20 PM	1:30 PM	00:10	Break			
1:30 PM	2:30 PM	01:00	Performance Engineering * <a href="#">Session discussion thread</a>		Technical	Miguel Barros Pedro Barret Bryan Schne

2:30 PM	2:50 PM	00:20	Web Payments * <a href="#">Session discussion thread</a>	Web-payments with Mobile Money API and Mojaloop	Technical	Donovan Chang
2:50 PM	3:25 PM	00:35	Portal for Hub Operators/TechOps * <a href="#">Session discussion thread</a>	<ul style="list-style-type: none"><li>An overview of the various portals envisioned for the Hub</li></ul>	Technical	Henk Kodde Rob R
3:25 PM	3:30 PM	00:05	Break			
3:30 PM	4:00 PM	00:30	Rules Processing * <a href="#">Session discussion thread</a>	Describe the business case for including a generic rules processor as part of the core Mojaloop product. Discuss the required characteristics for such a processor and propose a design to meet those requirements.	Technical	Michael Richard James Bush
4:00 PM			Done			

DAY FIVE - Roadmap Planning



Time (UTC/GMT)	End	Duration	Friday: July 24, 2020	Details	Track	Speakers
11:00 AM	12:00 PM	01:00	Roadmap & Workstream Review	Present roadmap items for PI 11	Community	Sam Kummary, Warren Carew
12:00 PM	12:30 PM	00:30	Roadmap Voting	Review roadmap items and <a href="#">vote</a> for your top three items based on business value	Community	
12:30 AM	1:00 PM	00:30	Break	Session Break	Community	
1:00 PM	2:30 AM	01:30	Workstream Discussions	Join one of the Sessions (Titles updated after voting) <a href="#">Session 1</a> <a href="#">Session 2</a> <a href="#">Session 3</a> <a href="#">Session 4</a> <a href="#">Session 5</a> <a href="#">Session 6</a> <a href="#">Session 7</a> <a href="#">Session 8</a>	Community	
2:30 PM	4:00 PM	01:30	Workstream Report outs & Closing	Individual workstreams present board and objectives	Community	
4:00 PM			Done			

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Category

Topics

## Uncategorized

1

## Business Discussions

0

Discussions on business use cases, integrations or deployments for Mojaloop

## Governance

0

Community conversations aimed at creating a strong and diverse Mojaloop community

## Development

0

Technical discussions for Mojaloop development, related work streams, code contributions, bugs etc

## Events

0

Announce community events like meetups and conferences

## Announcements

0

Any Mojaloop-related projects are welcome to post announcements here. This generally includes new projects, project releases

## Jobs

0

If you are looking for Mojaloop developers or need to get a project done, feel free to post your job offering here.

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- Mojaloop Overview
- Mojaloop Background
  - Onboarding
- Deployment Guide
- Contributors Guide
- Mojaloop Technical Overview
- API Specifications
- Repo Details
  - Mojaloop Roadmap
  - Mojaloop Publications
- Discussion Documents
- ...
- Code Quality and Security
- Frequently Asked Questions
- Glossary of Terms

Isolated subnetworks.



Our model addresses these issues in several key ways:

- A set of central services provides a hub through which money can flow from one DFSP to another. This is similar to how money moves through a central bank or clearing house in developed countries. Besides a central ledger, central services can provide identity lookup, fraud management, and enforce scheme rules.
- A standard set of interfaces a DFSP can implement to connect to the system, and example code that shows how to use the system. A DFSP that wants to connect up can adapt our example code or implement the standard interfaces into their own software. The goal is for it to be as straightforward as possible for a DFSP to connect to the interoperable network.
- Complete working open-source implementations of both sides of the interfaces - an example DFSP that can send and receive payments and the client that an existing DFSP could host to connect to the network.

The intention for the Mojaloop project is for financial institutions and commercial providers to use the open-source software to help build digital, interoperable payments platforms that drive financial inclusion on a national scale. Specifically, the platforms will enable seamless, low-cost transactions between individual users, merchants, banks, providers, and even government offices - helping connect poor customers with everyone else in the digital economy.

## Mojaloop Logo



Open Source Software  
Empowering Organizations to  
Create Interoperable Digital  
Payment Systems to Increase  
Financial Inclusion



### What is Mojaloop?

Mojaloop was designed to provide a reference model for payment interoperability, that can be used to overcome barriers that have slowed the spread of digital financial services. Whole, adapted, or as a blueprint – the Mojaloop Foundation’s open source software can be used by organizations to build interoperable, digital payment systems that enable seamless, affordable financial services between individual users, banks,

government entities, merchants, mobile network operators, providers, and technology companies – connecting the underserved with the emerging digital economy.

[Visit the GitHub Project](#) | [Visit the Community](#) | [Explore the Documentation](#)

## Where Mojaloop Can Help

---



Person-to-  
person  
transfers



Check  
Account  
and  
Merchant  
point-of-  
sale



Payroll  
and other  
bulk  
payments



Account  
Management



Fraud  
Monitoring



## How Mojaloop Could Be Used

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- A central bank may commission the use of the software by its commercial partners to speed up the deployment of a national payments gateway
- A major payments processor can use the software to modernize its current offering to achieve lower transaction costs without major R&D investments
- A fintech startup can use the code to understand how to implement with interoperable payments APIs
- A bank can use the code to modify its internal systems so that they easily interoperate with other payments providers

## Mojaloop Foundation initial Sponsor Members

---

Mojaloop Foundation intends to operate as a charitable nonprofit, maintaining its free, open source software, Mojaloop, and community as public goods in service of financial inclusion. Merchants, banks, providers, government offices, and other entities looking to build inclusive payments platforms can use Mojaloop—whole, adapted, or as a commercially viable real-time payments reference model. [Membership](#) is open to mission-driven, non-governmental and technology entities focused on advancing financial inclusion.

BILL & MELINDA  
GATES *foundation*

# Coil

# Google



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May 6, 2020

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Gates Foundation to  
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payments in developing  
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June 26, 2020

**Mojaloop PI-11 OSS  
Community Meeting**

We invite you to join us for  
the Mojaloop PI-11 OSS  
Community Meeting  
Online July 20-24, 2020.  
Attendees will have the  
opportunity to catch up on  
development updates,  
have the opportunity...

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**mojaloop**












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# Events Mojaloop PI-11 OSS Community Meeting

Topic		Replies	Activity
About the Mojaloop PI-11 OSS Community Meeting category		1	June 25, 2020
Protecting biometrics at the edge of the network		1	July 8, 2020
Mowali Update Session		1	July 17, 2020
Web Payments with Mobile Money API and Mojaloop		1	July 14, 2020
OSS FRM Session		1	July 10, 2020
Bulk Payments Updates		1	July 8, 2020
Mojaloop on Azure		1	July 8, 2020
Versioning Workstream		1	July 8, 2020
Rules Processing		1	July 8, 2020
Portal for Hub Operators/TechOps		1	July 8, 2020
Performance Engineering		1	July 8, 2020

Mojalop Fraud Risk Management Playback		1	July 8, 2020
Mifos Payment Hub EE and Lab Update		1	July 8, 2020
Community Updates		1	July 8, 2020
Testing Toolkit		1	July 8, 2020
Payment Initiation Service Providers (PISP)		1	July 8, 2020
Code Quality Workstream		1	July 8, 2020
Modusbox Community Contributions		1	July 8, 2020
OSS Core team: PI-10 Report-out		1	July 8, 2020
GSMA Interoperability Test Platform		1	July 8, 2020
Settlement and Controls		1	July 8, 2020
#40Days40FinTechs Initiative Lessons		1	July 8, 2020
Snapp Presentation		1	July 8, 2020
Battle of the Titans: PIX – the new Brazilian instant and interoperable payment infrastructure		1	July 8, 2020
Cross Network Report Out		1	July 8, 2020
Driving Financial Inclusion from the Middle: How Mojaloop can support DFSPs in reaching the last mile		1	July 8, 2020

Mojaloop Foundation Updates		1	July 8, 2020
Introduction and Business Overview of L1P and Mojaloop		1	July 8, 2020
Mojaloop Technical Overview		1	July 8, 2020
Call for Sessions now open!		2	July 2, 2020

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# ROADMAP VOTING

Welcome to the PI-11 roadmap voting

- Please review the roadmap items below, before voting
- Each individual gets 3 votes



- When you are ready to vote, go to PowerNoodle [HERE](#)
- You can change your vote anytime up to Friday the 24th at 12:30PM GMT

## Roadmap Topics & Business Value

S.No	Title	Business Value
1	Forensic Logging, Secure auditing	This will provide Forensic Logging and Auditing capabilities to Mojaloop Core for Security and Auditing purposes. ( Part-1 Design, PoC): The topic itself will span 2 PIs as its significant, the first part will involve design and limited implementation as PoC or on selected core services (the second PI will standardize and implement it across all of Mojaloop Core)
2	Performance: PoC learnings implementation	Improve Scalability and Performance of Mojaloop Core services; depending on the outputs of the Perf/Arch PoC stream which will be presented at the event, a decision needs to be made whether to refactor the core system as a whole or if several items can be cherry picked and used as enhancements to the current codebase. This will need to include various stakeholders' inputs and take into consideration how it will impact production systems that are currently live (and how upgrades can/should be handled if we go ahead with this).
3	Ticketing system	A proof of Concept for integration with a widely used ticketing system as reference implementation; this is to be integrated with events of interest at various levels of Operation, Administration (such as health of infrastructure, services or hitting thresholds / limits on NDC, etc)
4	Portals for Onboarding & Managing DFSPs, etc	Portal development improvements and documentation to ease the onboarding for new community members and/or DFSPs
5	Rules API	Generic rules processing as part of the core Mojaloop product.
6	Split Payment Capability (SNAPP)	Further development efforts and evangelize the split payments concept
7	Standardize operations	Standardize the Onboarding and Operations API that is used to Onboard FSPs and manage various aspects such as Limits,

	(Admin) API	Endpoints, Contacts, Thresholds, etc.
8	Streamline Testing & QA	Provide reliability of testing processes by improving coverage on features, reliability of tests, documentation, cron jobs for regression testing and other QA features.
9	ISO 20022 adaptation	Natively adapt to ISO 20022 to support World Bank initiatives
10	Code quality and Security	Additional development to ensure Mojaloop is of high quality with robust security practices
11	Cross Network / Currency (CNP/FXP)	Enhance Mojaloop to support cross-border and cross-network payments (payments from one country/currency/provider to another)
12	Fraud Management	Introduce a framework technology to help with the management and prevention of fraud within the system
13	Leadership & Community Management	Provide guidance, governance and support for the development of tools, hack-a-thons and communication to community members
14	LPS Adapter Enhancements	Develop future pilots and/or use cases for the Legacy Payments System (LPS) , ATM, Point of Sale (PoS), etc.
15	Payment Initiation Service Providers (PISP)	Provide a generic solution to allow 3rd Party Payment Initiation in Mojaloop. Un-bundle traditional banking business models, and allow new types of entities (PISPs) to build banking applications.
16	Payments Hub (MIFOS)	
17	Settlement-v2	Building on the changes made to support Interchange Fees, Continuous Gross Settlement (CGS) - and will depend on the inputs, proposals made during the Settlements presentation.
18	Testing toolkit for FSPs, Hubs	Support wider adoption and enhance test coverage (for DFSPs, Hubs); provide support to transition existing postman collections
19	Versioning standards, version maintenance	Provide standards for versioning Mojaloop releases, APIs; Provide enhancements to make it easier for Mojaloop consumers to upgrade to new versions of the platform

20	Web Payments (Coil)	Web-payments with Mobile Money API and Mojaloop
21	GSMA Lab	Enhancements to the GSMA Lab

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