

mojaloop

# Cross Network Design

API changes required to connect networks

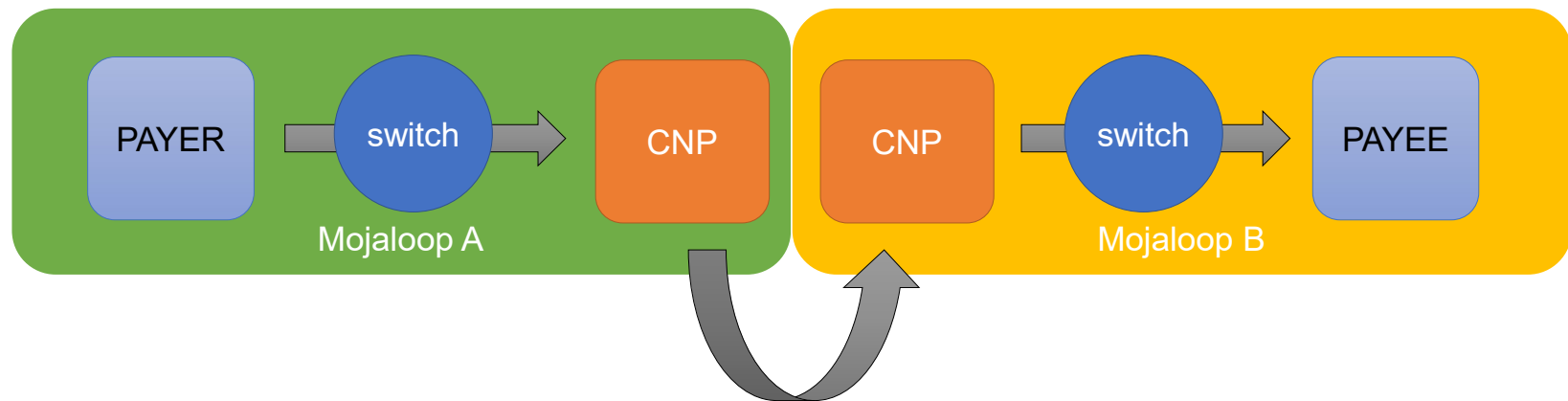
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# Updates

- Workshop in London – 29 and 30 October
- Scoped work to “Payer Initiated” generic pattern
- Designed flows for lookup, quote and transaction phases
- Define detailed API changes required to support use cases

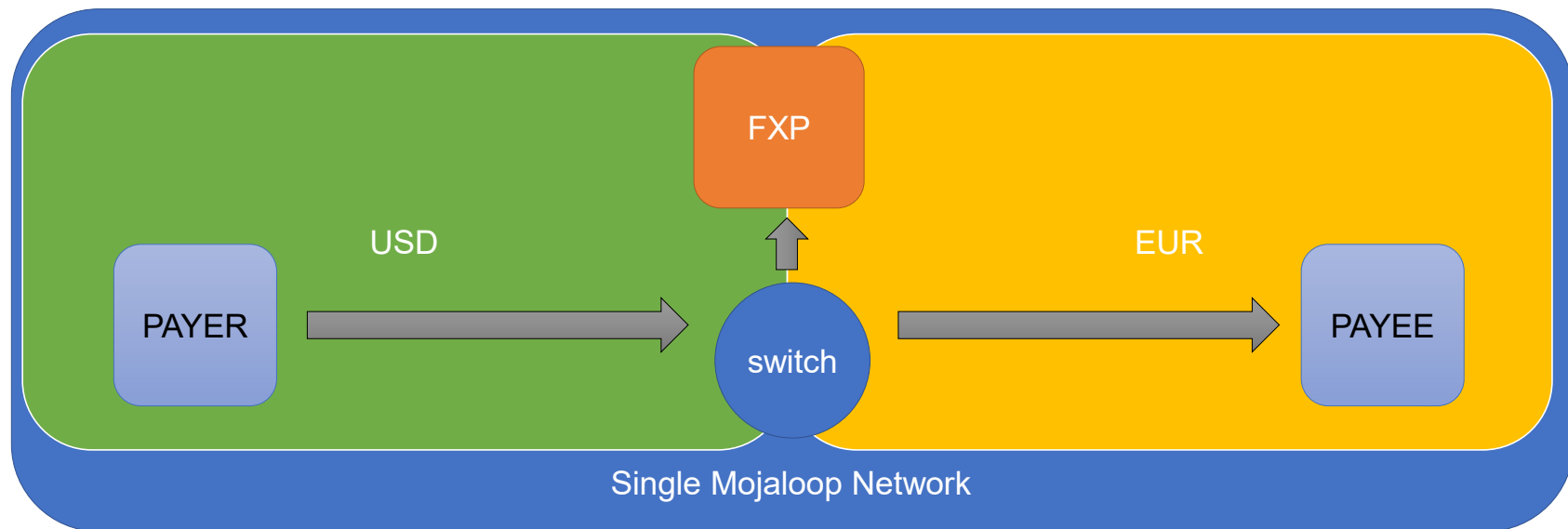
# Cross-Network Providers

- A cross-network provider is split between two physical networks
- Accepts a ***transfer*** on network A and makes a ***transfer*** on network B
- This is a single ***transaction***



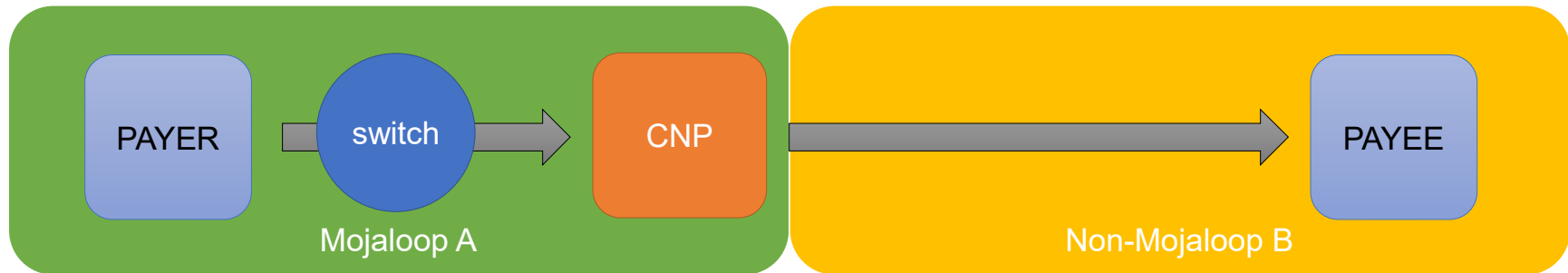
# Foreign Exchange Provider

- An FXP facilitates FX inside the same network

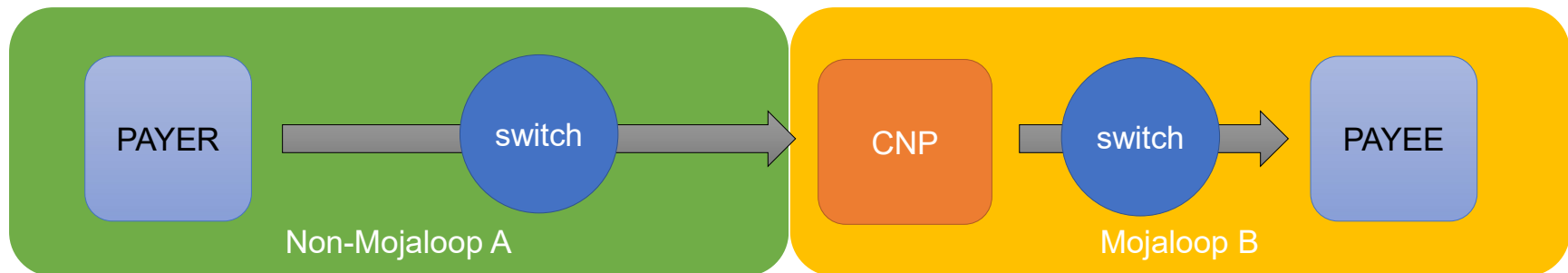


# Connecting to non-Mojaloop networks

- Payer is in a Mojaloop network



- Payee is in a Mojaloop network



# Lookup Phase

- Two deployment scenarios we need to consider
  1. Switch provides a list of CNPs to payer FSP
    1. Payer FSP sends party lookup to switch
    2. Switch identifies party as being “out of network”
    3. Switch sends list of all CNPs to payer FSP
    4. Payer FSP sends a lookup request to each CNP
  2. Switch interrogates CNPs directly to Lookup Party Information
    1. Payer FSP sends party lookup to switch
    2. Switch identifies party as being “out of network”
    3. Switch forwards lookup to each CNP
    4. Switch returns aggregated result back to Payer FSP
- Party data model supplemented with account info (see next slide)



# Party (part of Lookup response)

Data Element	Cardinality	Type		Description
partyIdInfo	1	Name	Description	Party Id type, id, sub ID or type, and FSP Id.
		partyIdType	The type of the identifier.	
		partyIdentifier	An identifier for the Party.	
		partySubIdOrType	A sub-identifier or sub-type for the Party.	
		fspId	The FSP ID (if known)	
merchantClassificationCode	0..1	merchantClassificationCode		Used in the context of Payee Information, where the Payee happens to be a merchant.
name	0..1			Display name of the Party, could be a real name or nickname.
personalInfo	0..1			Personal information used to verify identity of Party such as name and date of birth.
accounts	0..1			A list of accounts that can accept transfers for the party.
		currency	The currency of the account.	
		address	The address of the account.	

This is the identifier of the final destination FSP. It is different to the identifier of the destination participant in the message header

# Observations

**NOTE:** A single MSISDN could resolve to accounts at multiple FSPs...

- We need to support multiple parties per lookup response (a list)
- Can we use BIC codes or similar to identify FSPs across networks? (Being explored)



# Quote Phase

- Accommodate non-Mojaloop integrations for payments delivered outside Mojaloop ecosystem
  - Add optional “maxValueDate” to quote request
  - Add “valueDate” to quote response
- Add a list of Participants to share rates/fees and compliance data
- Add “account address” to ensure the quote is routed to the correct account
- Add transaction object and echo data to response to accommodate deprecating OER encoded packet

# Quote

Name		Type	Description
quoteId	1	CorrelationId	Common ID between the FSPs for the quote object, decided by the Payer FSP.
transactionId	1	CorrelationId	Common ID between the FSPs for the future transaction object.
transactionRequestId	0..1	CorrelationId	Identifies an optional previously-sent transaction request.
payee	1	Party	Information about the Payee in the proposed financial transaction.
payer	1	Party	Information about the Payer in the proposed financial transaction.
amountType	1	AmountType	SEND for send amount, RECEIVE for receive amount.
amount	1	Money	The amount the Payer would like to send or the amount the Payee should receive.
fees	0..1	Money	Fees in the transaction.
transactionType	1	TransactionType	Type of transaction for which the quote is requested.
geoCode	0..1	GeoCode	Longitude and Latitude of the initiating Party. Can be used to detect fraud.
note	0..1	Note	A memo that will be attached to the transaction.
expiration	0..1	DateTime	Expiration is optional.
accountAddress	0..1	AccountAddress	The address of the payee account
participants	0..16	Participant	The participants in the transaction.
maxValueDate	0..1	DateTime	The maximum Value Date for this transaction to clear in the payee's account
extensionList	0..1	ExtensionList	Optional extension, specific to deployment.

# Quote (Response)

Name		Type	Description
transferAmount	1	Money	The amount of Money that the Payer FSP should transfer to the Payee FSP.
payeeReceiveAmount	0..1	Money	The amount of Money that the Payee should receive in the end-to-end transaction.
payeeFspFee	0..1	Money	Payee FSP's part of the transaction fee.
payeeFspCommission	0..1	Money	Transaction commission from the Payee FSP.
expiration	1	DateTime	Date and time until when the quotation is valid and can be honored when used in the subsequent transaction.
geoCode	0..1	GeoCode	Longitude and Latitude of the Payee. Can be used to detect fraud.
transaction	1	Transaction	The end-to-end transaction.
echoData	0..1	String(1..2048)	Opaque data provided by the payee that must be echoed back unchanged in the transfer.
condition	1	IlpCondition	The condition that must be attached to the transfer by the Payer.
participants	0..16	Participant	The participants in the transaction.
extensionList	0..1	ExtensionList	Optional extension, specific to deployment.

# Participant

Name	Cardinality	Type	Description
fspId	1	FspId	The identity of the participant
transferCurrency	1	Currency	The currency of the transfer that will be made by this participant.
fee	1	Money	The fee that will be charged by the participant.
rate	0..1	Amount	The rate of exchange that will applied by this participant.
expiration	1	DateTime	Date and time until when the quotation is valid and can be honored when used in the subsequent transaction.
dataRequired	0..32	String(1..128)	List of required
dataProvided	0..32	EncryptedData	The data provided by other participants for use by this participant.

# Optimizations

- If the CNP rates are known/published the switch can pre-select the best CNP for a quote



# Challenges / Next Steps

- Lack of real-world examples to test design against
- Need more input from implementors
- Need to focus on non-Mojaloop integration until Mojaloop is more ubiquitous