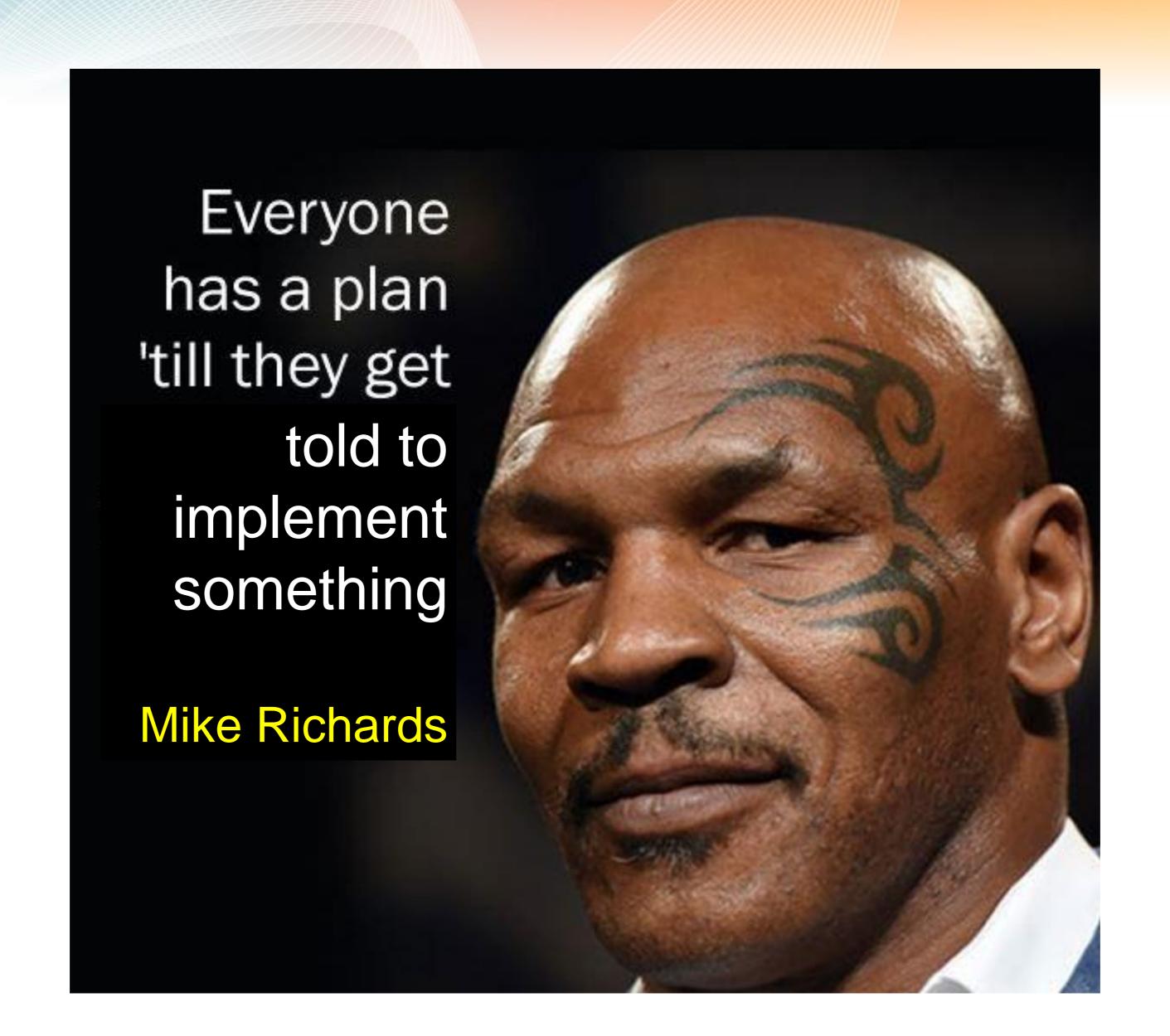# mojaloop

Cross-border morning: I'm just talkin' 'bout my i-i-implementation…

mojaloop

I'm just talkin' 'bout my i-i-implementation…

People try to put us down,
Just because we have to shift things around…
Don't wanna deploy nothing b-b-badly designed,
But you gotta work in the world that you find.
I said my, my, my implementation…

Or, to put it another way:

Everyone has a plan 'till they get told to implement something

Mike Richards

The background

- A Mojaloop scheme is like a family:
- The participants know each other pretty well…
- … and they're all living in the same (virtual) space.
- Connecting to a cross-border system is like leaving home…

- … full of opportunities, but it's a bigger world where nobody knows you yet.

Hot issues

- Duplicate identifiers
- Settlement models
- Fees
- KYC
- Identifier management

Duplicate identifiers

What's the problem?

- People can belong to more than one mobile money system…
- … or different family members might share a handset.
- So the MSISDN doesn't uniquely identify a mobile money system
- We need a way for the system to understand which mobile money system to route an address resolution request to.

How we solve this problem within a scheme

- In a Mojaloop scheme, every participant will usually know every other participant.

- Typically, end user applications already allow the customer to select which Mobile Money System they want to send to.

- So the sending FI can include the information in the address resolution request
  - We still want to make the request, though:
    - We want to do name resolution
    - … and we want to confirm that the account is active

But this won't work in a cross-border world

- The sending party may have no idea which account-holding institution owns the beneficiary's account.

- … and their application won't know about the alternative candidates.

- So we need a new address resolution solution which will:

  1. Use the identifier alone to return a single institution which will receive the funds.
  2. Allow a way for the institution associated with the MSISDN to be changed.

Alternative solutions

1. Is there a way for the remitting customer to enter the beneficiary DFSP's identifier?
   - How will they know which code to enter?
   - Each sending application will need to be modified to allow the additional selection

2. Latest registration wins
   - Rough and ready solution with some explanatory power
   - Customer may be surprised by where credits end up…
   - … and this definitely doesn't solve the shared handset problem

3. Customer can set their preferred receiving DFSP
   - The most complex to implement
   - … and still doesn't solve the shared handset problem

What did we do?

- Implemented the latest registration first solution:
  - ➢Simple to set up
  - ➢Reasonably efficient while participant numbers are low
  - ➢Doesn't require any changes from any of the participants
  - ➢We can move to a more sophisticated solution later

Here is the sophisticated one

- Customer can set the preferred DFSP to receive the remittance.
  - ➢ Submit the request to Mojaloop via the DFSP's application to make the DFSP as the preferred one…
  - ➢ Using OTP verification, Mojaloop confirms whether the customer initiated this activity or not
  - ➢ The customer confirms and then switches the preferred DFSP

Settlement models

Settling between systems

- In the Mojaloop world, we (typically) only need to worry about a single settlement structure.

- In a cross-border world, funds will typically arrive from another scheme on a timetable which isn't related to the remittee scheme's settlement timetable.

- This is likely to place significant liquidity pressure on the CNP as a settling participant in the remittee scheme.

- But, for the moment, we will definitely need to be able to:
  - Distinguish between internal transfers and remittance transfers.
  - Settle them according to separate settlement models.

Distinguishing external transfers

- Two possibilities:
    - Use an identifier type which is specific to external transfers
        - This would enable participants to register their customers separately for the receipt of remittances…
        - … which would enable the participant to collect appropriate KYC…
        - … but would need modifications to the *partyIdType*.
    - Use the *subScenario* element of the *TransactionType* object.

- In both cases, the appropriate value would be set for inbound transfers by the CNP.

- No change to the behaviour of creditor participants would be required.

Acting on the difference

- We can already define settlement models by ledger account type

- We can apply a rule on transfer prepare which:
  - Reads the content of the transfer
  - Assigns ledger account types based on the content

- By default, assigns the current account types.

- Now all our remittances can be settled separately.

- We leave the transfer window structure as it is (for now…)

Fees

Fee agreements: the problem

- Many existing remittance corridors are based on point-to-point agreements between FIs.

- Fees are set as part of these agreements and typically settled out of band.

- Part of the point of interoperation is to replace point-to-point relations with hub-and-spoke relations.

- So the existing model will be unworkable at the kind of scale we want to think about.

The solution

- APIs (and, perhaps, functionality) will need to be extended to allow:
  - The definition of fees at a per-transfer level.
  - The definition of fees at an IIPS level, where hub fees and interchange fees are charged.
    - These can currently be charged and collected out of band…
    - …but this won't wash with cross-network traffic…
    - … so we may need to extend the Mojaloop API to support the definition of hub fees while retaining the non-repudiability check.

How far have we got with this?

- In the immortal words of Tom Waits:

I started out with nothing
and I still got most of it left.

Tom Waits

KYC information

Tom Waits time…

- Eventually, we shall need a mechanism
    - *Either* to have an agreed set of KYC information which is:
        - Capable of universal implementation
        - Appropriate to the KYC structures of the poor
    - *Or* to have a way for participants to request the KYC information specific to their jurisdictions.
        - The Nexus project is working in this area.
        - It might be possible to use ISO 20022 message structures in to support this.

- But for the moment, we're in Tom Waits mode…

Identifier management

There's a general difference of belief

- One party wants to work with account numbers
  - Or card PANs, or some other kind of direct representation of the account itself.
  - Both the account-holding FI and the requester need to agree on the value...
  - … but the customer doesn't have to register an identifier: the account number is already there.
  - There are problems in jurisdictions where branch identification is patchy or non-existent

- The other party wants to work with identifiers
  - An identifier is a trigger which an account-holding institution can use to decide which account is being referenced.
  - The account-holding institution doesn't have to expose the actual account, or its forms of account identification, to anybody else.
  - The customer has to register their identifier with the account-holding institution

The problem is:

- Some systems want to use account numbers…
    - SWIFT
    - Visa Direct

- … and some systems want to use identifiers
    - Er, Mojaloop
    - Nexus

- Actually, this is mostly a problem about formats, not actual accounts…

- …except where the remitting system is targeting accounts for settling.

- And, fortunately, account resolution typically allows an identifier to be resolved to an account number

Our solution:

- We use the CNP to manage the mapping of "account numbers" and identifiers.
- As long as the payment execution request is reliably transferred to the CNP, it can:
  - Substitute the identifier which was originally used in the address resolution request for the "account number" when it passes the request to the creditor party.
  - Substitute the "account number" when it passes the response back to the debtor party.
  - Create new "account numbers" as required when new payment identifiers are encountered.
- Provided that the address resolution process supports it, there is no need to register the "account numbers" with the sending system.
- If required, we can map these "account numbers" onto a single real account number at the CNP to manage the receipt of settlement funds

Thank you…