



# Integration Architecture

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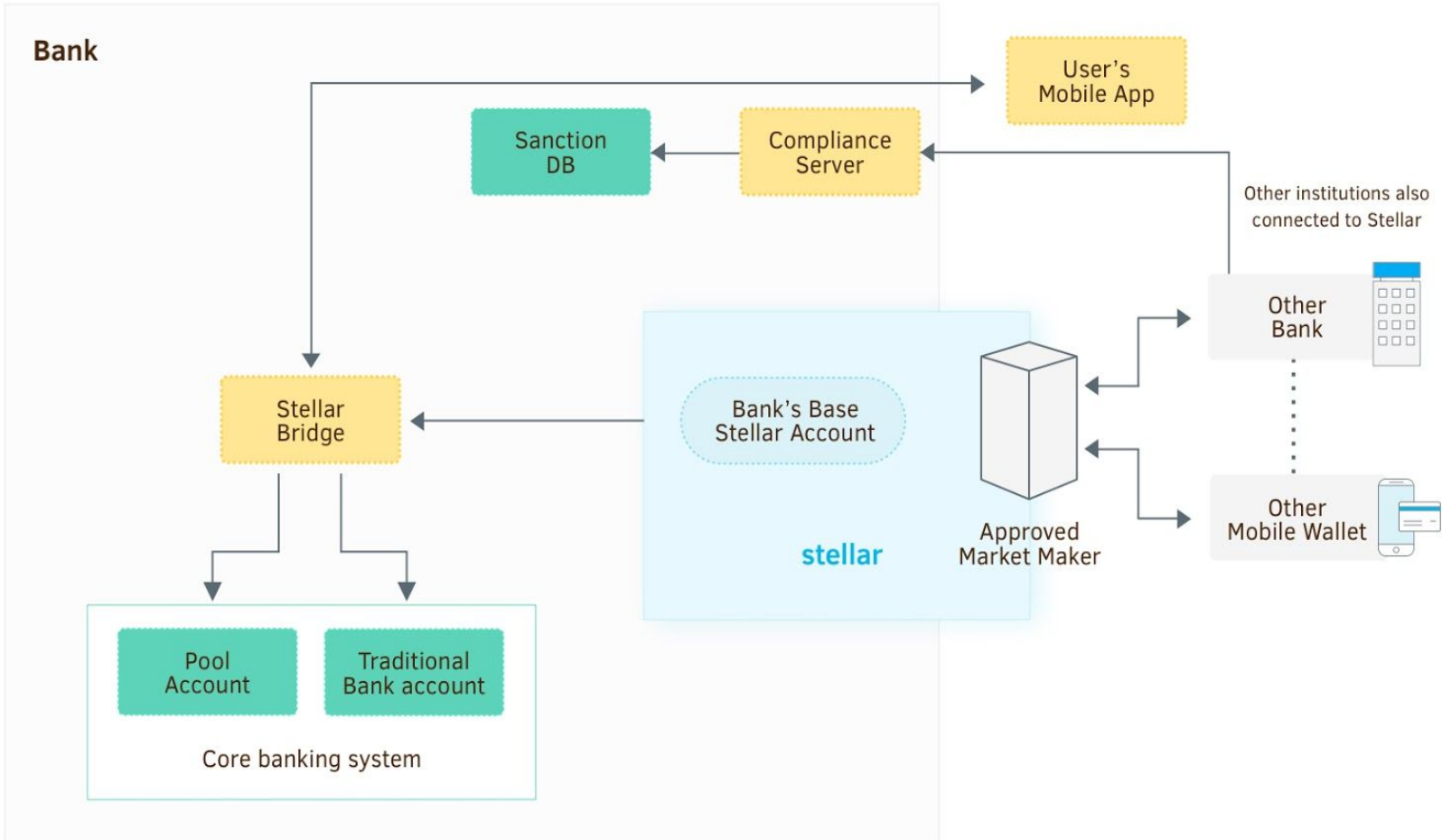
## Goal

Connect Bank customers to the Stellar network. Allow Bank customers to send and receive micro transactions and cross border payments easily on their phone or online.

### **Possible use cases:**

- mobile payment system
- low cost domestic payments
- Serving the traditionally unbanked with low cost accounts
- remittances and cross border payments

# Architectural Diagram



## Core components of integration

### → **Stellar Bridge** (Need to build. ~1-2 weeks)

- ◆ Connects your core banking system with the Stellar network.
- ◆ Listens for incoming transactions to the Stellar Base Account. When a transaction comes in, the Stellar bridge:
  - Does sanction checks on the sender
  - Credits the correct user account
  - Debits the pool account
  - Notifies the receiving user's mobile app
- ◆ Receives transaction requests from the mobile app. When a request comes in, the Stellar bridge:
  - Checks that the user's account has the needed funds
  - Does sanction checks on the recipient
  - Debits the user's account
  - Credits the pool account
  - Submits the transaction to the Stellar network

### → **Web Client or Mobile App** (Need to build: starting with Stellar's or Bank's mobile wallet. ~1 week)

- ◆ Lets user send and receive money, and check balance. The mobile app:
  - Allows user to enter a Stellar common name (ex: [bob\\*barclays.uk](#)) as recipient or sender
  - Sends this info to the Stellar bridge and gets reply
  - Receives notifications when funds are received

### → **Compliance Server** (Need to configure)

- ◆ Translates from the common name to the Stellar accountID
- ◆ Looks up the KYC info of the sender or receiver in order to do sanction checks

## Accounts used in the Integration

### → **Pool Account**

- ◆ Internal account in the bank's existing infrastructure. This account holds funds that are tracked in the Stellar network.

### → **Stellar Base Account**

- ◆ Stellar account used to send and receive transactions from the Stellar network

### → **Market-Making Account** (ex: the forex desk of Barclays, other banks, traders)

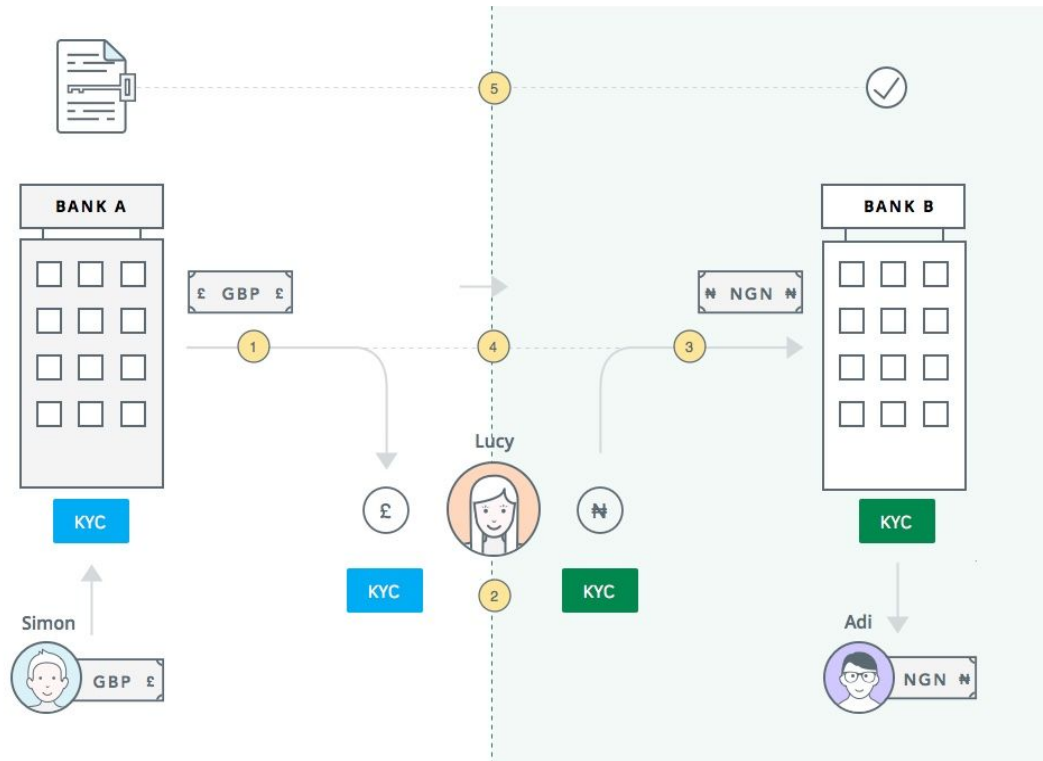
- ◆ The market maker has an account with each institution. It will trade from one institution to another or from one type of currency to another.
- ◆ See diagram below for details of how market makers are used in cross-border payments

## Step by Step Flow for a Customer

Bank customer sending money to someone internationally.

1. Bob logs into their Bank's account (User's Mobile App)
2. Bob fills out the send form
  - a. send to: [joe\\*wellsfargo.com](mailto:joe*wellsfargo.com)
  - b. amount: 30 USD
3. Send form submitted (Mobile App -> Stellar Bridge)
4. Stellar Bridge handles the Request (Stellar Bridge)
  - a. Federation fetches the KYC details of the recipient ([joe\\*wellsfargo.com](mailto:joe*wellsfargo.com)) from wells Fargo.com
  - b. sanction check done
  - c. Exchange rate determines how much source currency must be sent for Joe to receive \$30.
  - d. Stellar Transaction created sending from Bank's Base Account to [joe\\*wellsfargo.com](mailto:joe*wellsfargo.com)
  - e. Transaction submitted to Stellar
  - f. Bob's core banking account debited.
  - g. Core banking Pool account credited.
5. Transaction is created and submitted to Stellar (Stellar Bridge -> Stellar)
6. Some market maker trades the Bank's currency for the Wells Fargo USD (In Stellar)
7. Joe receives \$30 and can use it however Wells Fargo allows. (In Wells Fargo)

## How Stellar money moves between banks



Simon (on the lower left) a Bank A customer wants to send money to Adi (on the lower right) in Nigeria.

- 1) Simon sends 100 GBP. Using Stellar as a backend transfer mechanism, Bank A can send Simon's 100 GBP to Lucy. This is an intra-bank transfer from one KYC'd Bank customer to another KYC'd customer.
- 2) Lucy (the **market maker** in the middle) received 100 GBP from Simon. This is where Bank A's involvement with the transaction ends. Using Stellar as the backend, Lucy sends the equivalent amount of NGN to Adi.
- 3) Lucy's NGN (worth 100 GBP) is sent to Adi. This is an intra-bank transfer from one KYC'd customer to another KYC'd customer of Adi's bank.
- 4) From a customer perspective, Simon's 100 GBP transfer has been sent to Adi who received NGN (equivalent).
- 5) Simultaneously with the preparation of the transaction, the sending bank should do an AML check on the sender and the transaction. Upon receiving clearance, the bank can send the required AML information to the receiving bank to perform the required AML clearance on the receiving bank's side. This can happen as a separate API call.