FAC Cash Exchange Operating Model

Version 1.0 Dec 2020

Introduction

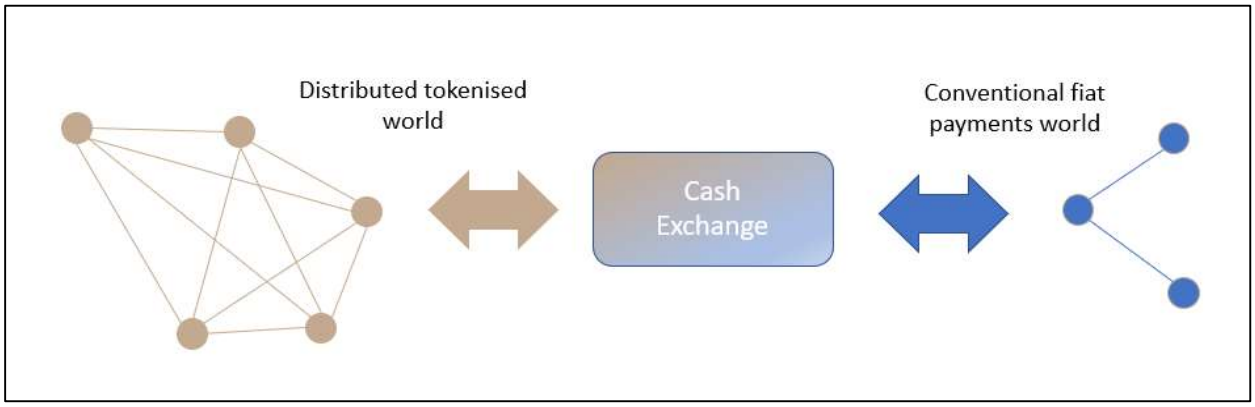
FAC is building an innovative distributed ledger-based platform for funds. The FAC network is a private, permissioned network for the mutual funds industry built on R3 Corda Enterprise. FAC acts as a platform for the full trading lifecycle; capturing, pricing and settling trades.

Both cash and fund assets are tokenised on FAC and transaction finality is achieved on ledger by atomic settlement (a bilateral synchronised DvP). The ledger is a series of independent nodes each operated by an actor in the value chain (investor, fund servicer, fund manager).

Acting as a gateway service, the cash exchange enables the transfer between on ledger digital tokens and real-world fiat cash.

The cash exchange will be a cornerstone of the platform delivering essential cash deposit and payment services to the fund managers, distributors and investors participating on the network. The cash exchange operator will provide integrity, reliability and global scalability for the essential service of immobilising and digitising fiat cash deposits. The pool of collateral will ensure confidence in the cash tokens that are backed by these deposits.

The cash exchange operator benefits from an opportunity to levy transaction fees and would optionally be able to generate additional revenue streams from enhanced services for FX and liquidity provision.



Further information about the FAC network design and architecture can be found in the FAC technical summary document.

Summary of Requirements

- FAC will partner with an existing regulated, deposit-taking entity to operate the cash exchange.
- The cash exchange operator needs to bring payment processing and cash safekeeping capabilities that will be integrated to the FAC cash exchange node.

- Fiat cash is held in a pooled account operated by the cash exchange (not segregated) The client holds cash tokens in an account on the FAC network which can be delivered back to the cash exchange in return for fiat currency from the pooled account.
- The cash exchange operator will provide both the conventional fiat cash payment and safekeeping services and will operate the on-ledger cash exchange node as the regulated issuer of cash tokens.
- The cash exchange operator will provide an automated, real time service to respond to requests for issuance or redemption of cash tokens and will process the corresponding fiat cash movements.
- The initial focus is UK/GBP-only, but our aspirations are to support future expansion into European, APAC and US markets with support for multiple currencies

Proposed Architecture

The cash exchange comprises three separate components that operate together to deliver the full cash exchange service.

Component	Role	Provider / Operator
1. Banking Services	Conventional banking services integrating to national and international payment rails	Provided and operated by a third with UK and International banking licence.
2. Safekeeping and Issuance control	Holding the fiat deposits as collateral against the token issuance, controlling receipts and payments and reconciling the issuance to cash held	Provided and operated by a third party with sufficient reputation and standing to hold collateral and guarantee the token issuance. (ideally the same entity as for 1)
3. On Ledger Exchange Node	Operates on ledger to issue and cancel tokens and track ownership and total issuance	Provided by FAC and hosted by the business network operator the cash exchange node is operated by the third party provider of 2 (above)

The cash exchange operates a node on the FAC network which is responsible for issuing and redeeming cash tokens and maintaining a record of all tokens issued. This node will need to be integrated into the off-ledger safekeeping service and conventional banking services.

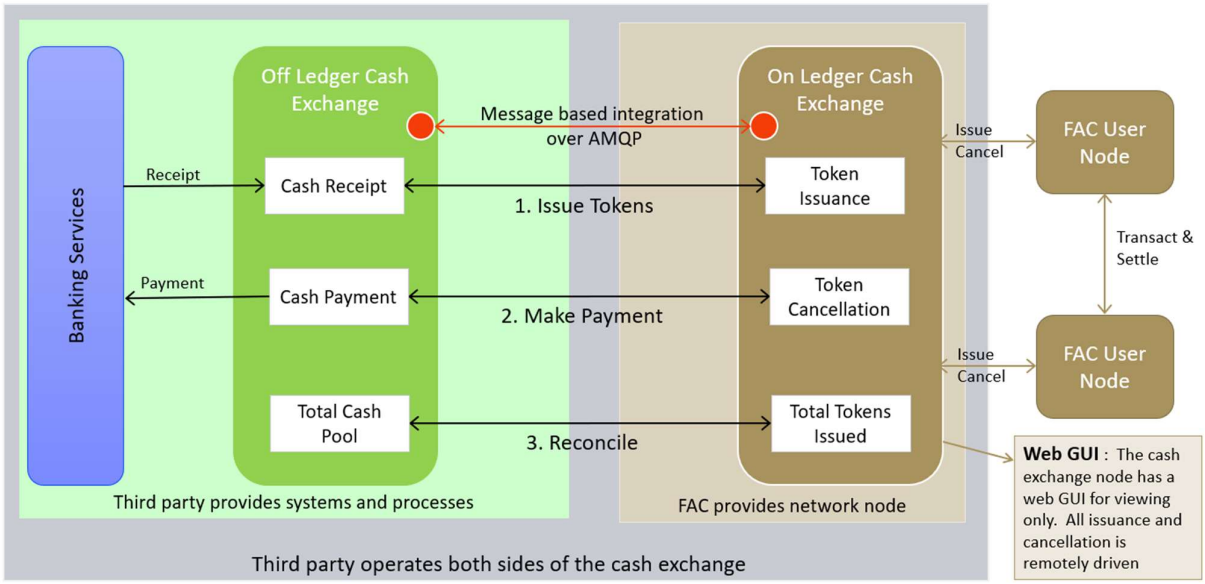
The cash exchange operator is responsible for operating both the conventional and on-ledger parts of the process, ensuring a strict 1:1 relationship between fiat cash collateral and tokens issued on the network.

The exchange process is expected to be highly automated with workflows for processing receipts and payments through the exchange and maintaining the reconciliation. A supporting customer service function would be necessary to resolve any errors or queries

raised by FAC users. The cash exchange operator would be required to have the appropriate authorisations from the UK Financial Regulators to operate the services described.

Workflows

The cash exchange process can be described in three workflows.



1. **Token Issuance (Receipt)**

   A FAC investor or fund node initiates this process requesting the cash exchange node to issue cash tokens. The cash exchange will respond to that request with a unique payment reference and will then wait for the deposit of fiat currency to the cash exchange operators account with the unique reference.

   Once the fiat currency deposit is received by the collateral pool the cash exchange node is notified to complete the process and issues the corresponding number of cash tokens to the requestors account on the FAC network.

   If the deposit is not received then the original request to the cash exchange node can be rejected and no further action required.

2. **Token Cancellation (Payment)**

   A FAC investor or fund node initiates this process requesting the cash exchange node to redeem cash tokens and pay out fiat currency. Cash tokens are deliverable instruments like bearer bonds so the delivering party has entitlement to the fiat collateral that is held against these tokens.

The cash exchange node cancels the tokens and creates a payment request for the third party operator to process. Participant bank account details are held on the FAC network and passed through to the third party as part of the payment request.

Once cash tokens are cancelled they cannot be resurrected so any problems need to resolved on the fiat cash side.

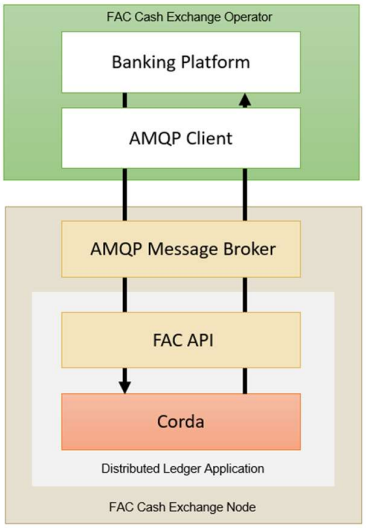
The initiating node creates a unique payment ref on the request so that this can be used to recognise the payment when it reaches their account.

3. Reconcile

The operator of the cash exchange must maintain at all times a strict 1:1 ratio between cash tokens issued and fiat currency held as collateral. Regular reconciliation is required to ensure this. The cash exchange node can be queried at any time to provide a real time total number of tokens issued on the network. This figure can then be compared to the fiat deposits held by the cash exchange.

Technical Integration

The cash exchange node component designed and delivered by FAC includes an API to allow it to be autonomously operated by the cash exchange provider.



The API is implemented on an industry standard messaging protocol, AMQP, using Apache Artemis. This is core technology within the Corda network and provides the necessary level of assured delivery and security for external interfaces.

The API implements each of the three workflows described above.

The cash exchange also has a Web based GUI allowing manual operation as an alternative or back up solution to API integration.

Regulatory Context

Cash tokens issued on the FAC network are a form of regulated e-money based on the criteria set out by the FCA and defined in PS19/22 section 3.7. The primary criteria to be regulated is a token must represent stored value with a claim against the issuer.

https://www.fca.org.uk/publication/policy/ps19-22.pdf

The legal certainty of the claim on the issuer and the confidence the network participant has of redeeming their tokens at par value on demand is critical to the viability of this operating model.

E-money tokens are regulated under the existing electronic money regulations and operator of the cash exchange would need to be authorised under this regime.

https://www.fca.org.uk/firms/electronic-money-payment-institutions

The FCA also operates the UK AML regime for crypto assets. Any business carrying out crypto asset activity in the UK must be authorised for this activity by the FCA.

https://www.fca.org.uk/firms/financial-crime/cryptoassets-aml-ctf-regime

Cash entering the network from an investor may carry a 'client money' status under the FCA CASS 7 rules. This would occur if the operator of the investor node was acting as a distributor or nominee and was introducing to the network money they held on behalf of their own clients. Fiat currency held by the cash exchange cannot retain this status as it is effectively 'spent' in a transaction to purchase cash tokens. Fiat currency is held by the cash exchange on a pooled basis as collateral against the issuance of tokens and is subject to the safeguarding regime set out by the EMR's. The CASS 7 client money status is passed onto the tokens issued to the investor and may be considered client money whilst held on an account on the investor node.

Distributed KYC / AML Process

Node operators, including the cash exchange, have regulatory responsibilities to ensure they know their clients and the source of any funds that are transacted through their nodes.

A permissioned distributed ledger enables secure, private exchange of data allowing parties to share identity data and harmonise their KYC processes.

Deposits received by the cash exchange will always originate from known participants of the network providing confidence and certainty on the source of funds.

To be permissioned onto the network as a node operator a participant must complete a KYC process with the Business Network Operator who will issue a cryptographic certificate using the PKI protocol. The cash exchange will receive this certificate as proof of identity in all transactions.