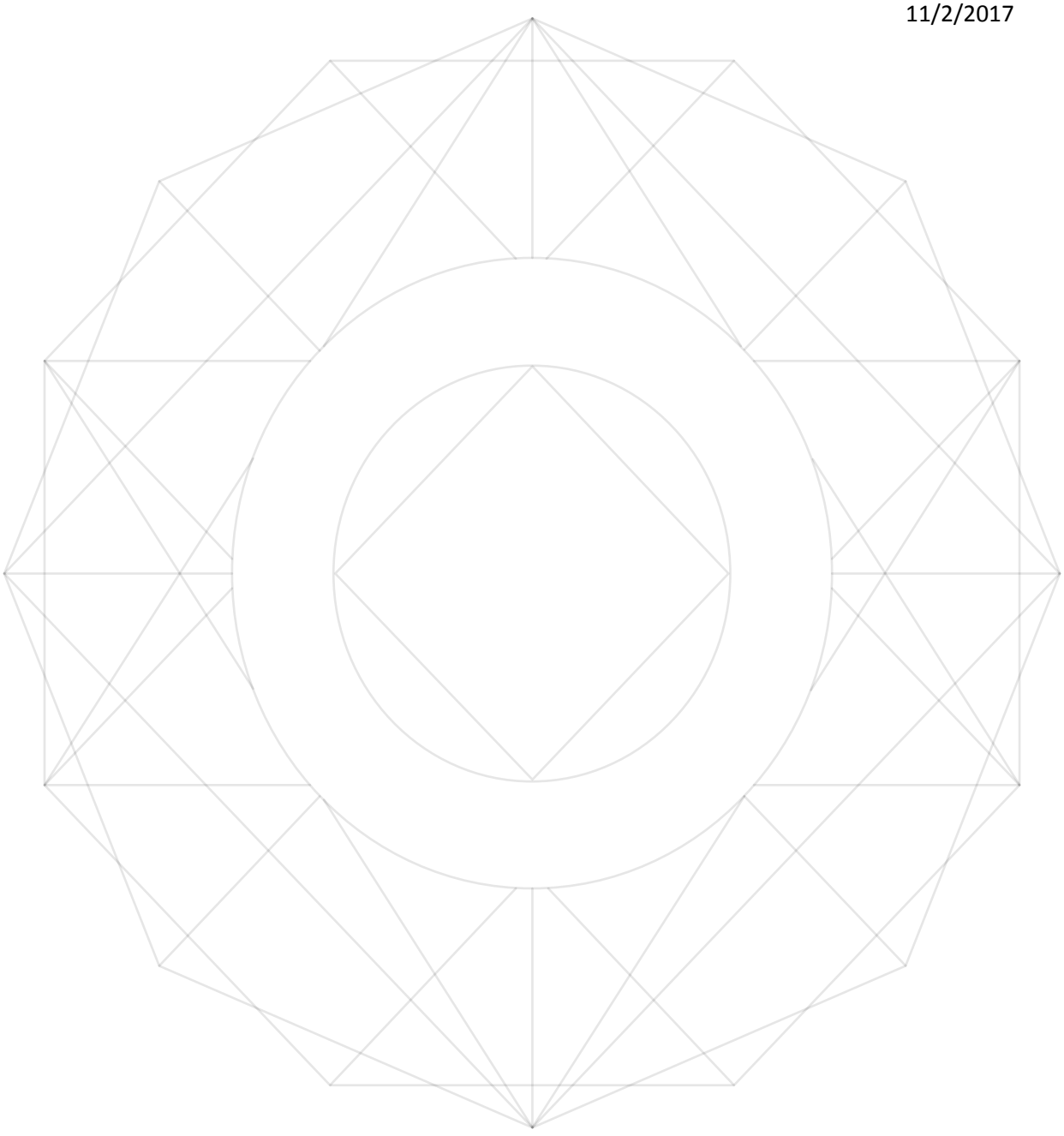
CFX
ALTERNATIVE TRADING

OPEN FINANCE NETWORK

TECH DIAGRAMS AND HIGH LEVEL OVERVIEW

11/2/2017



BACKGROUND: EXISTING SECURITIES TRANSACTION LIFECYCLE

The typical securities transaction lifecycle (STL) starts with a trade initiated from an investor, either a buyer or a seller. Their broker sends the transaction to an exchange for processing, where it is matched with a corresponding counterparty. The exchange then sends this matched transaction to a central counterparty clearinghouse (CCP), where it is reconciled with the brokers to reduce default and counterparty risk. From there, the transaction is sent to settlement, where the investor's custodians (who hold the assets and funds) work via the central securities depository (CSD) to ensure that assets and funds are transferred from one source to another. Finally, the transaction data is sent to the registrar or transfer agent of the underlying issuer in order to update their shareholder list and information.

Each one of these squares represents a different intermediary (company). Each company along the way maintains their own private ledger of data. While the "Central" companies maintain aggregated records of data, each company's ledger can differ quite substantially. **No single company has a master record of all executed transactions!**

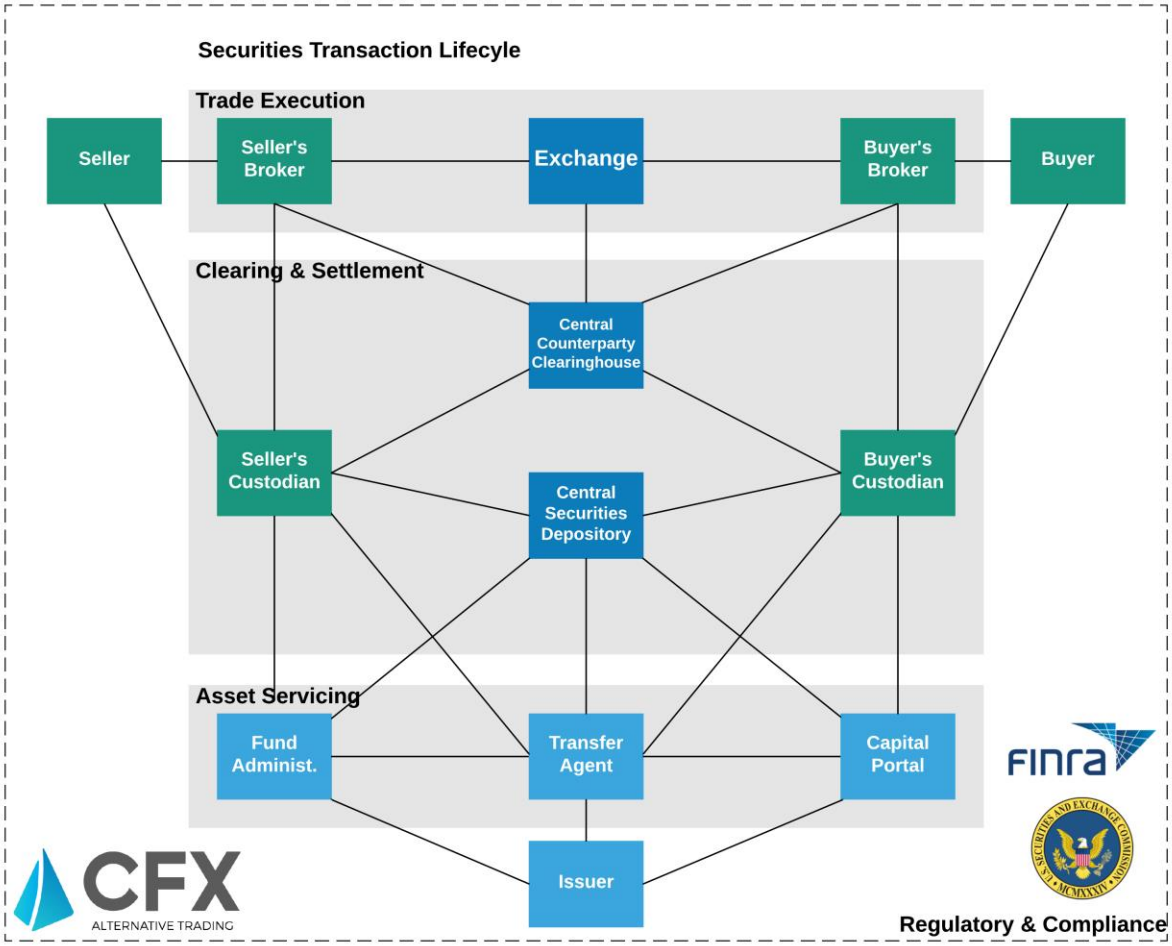


FIGURE 1 - SECURITIES TRANSACTION LIFECYCLE

Of note in this STL model are the key (central) roles that CSDs and CCPs play towards a fluid market. Generally grouped within the area of “clearing & settlement”, these entities provide a coordination mechanism that is the foundation for the common framework utilized by all participants. The CSD serves as the “golden source” for shareholder ownership, while the CCPs reduce counterparty risk for buyers and sellers, keeping all participants “honest” and trusted.

In short, the securities transaction lifecycle is inefficient - lacking interconnectivity, interoperability and protocol. The existing marketplace is fragmented, expensive and archaic. This is especially true in the alternative asset market, which is even slower and more antiquated than public equities markets (public equities = stuff that trades on NASDAQ and NYSE).

CFX MARKETS: THE TRADING PLATFORM FOR ALTERNATIVE ASSETS

CFX Markets is the leading trading platform for alternative assets. We work with the millions of investors who hold assets in the $90B direct participation program market (e.g. non-listed REITs, business development companies (BDCs), Regulation A+, Regulation CF and other crowdfunded assets). We integrate directly with the brokers, custodians and transfer agents who participate in this space, including Merrill Lynch, Ameriprise, Pershing, LPL, Fidelity, TD Ameritrade, Pensco, DST and ComputerShare.

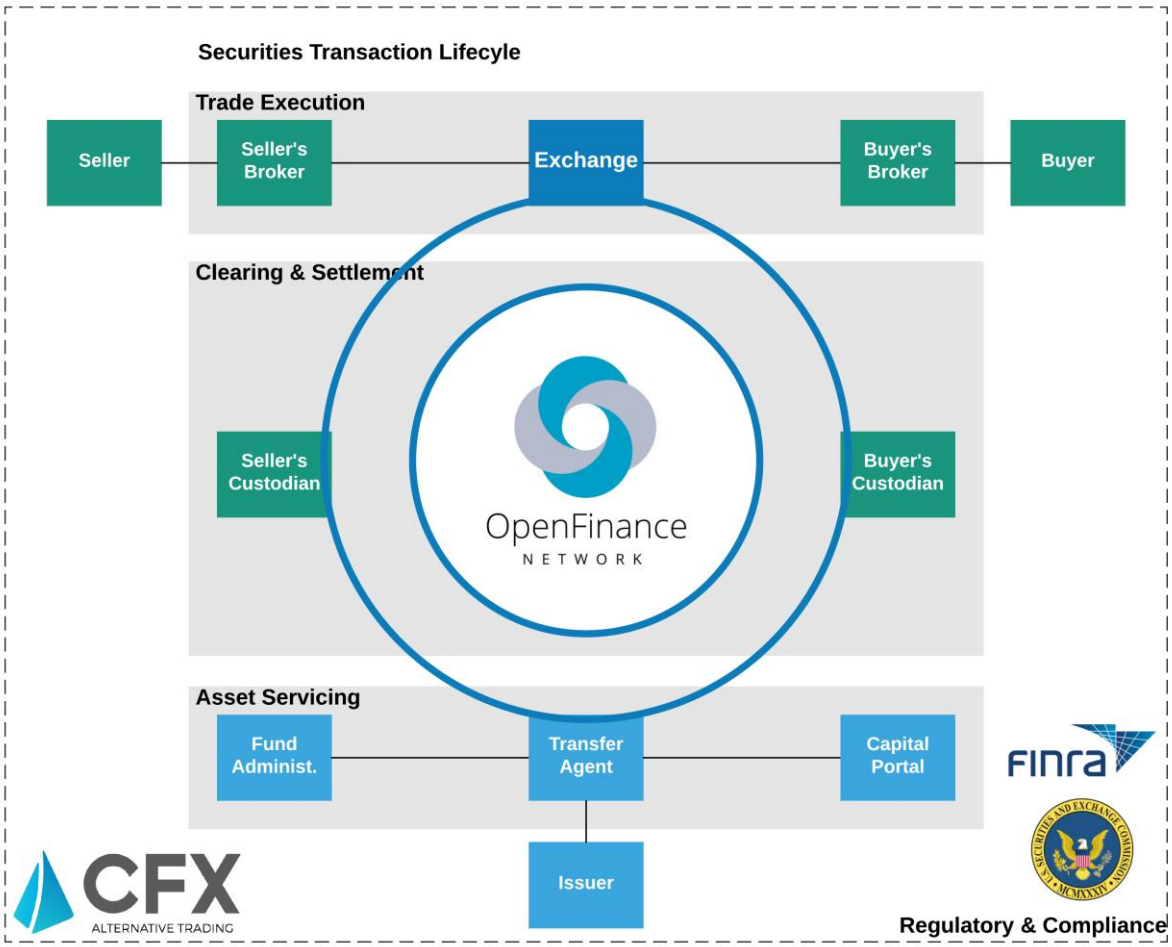
FIGURE 2 – SOME OF THE COMPANIES WE WORK WITH

Already a trusted player in the industry since 2014, we have direct insight into the flaws and shortcomings of the current market model. As a self-clearing broker-dealer, we touch all aspects of the securities transaction lifecycle, and have to deal with the antiquated clearing & settlement process of the industry; with a lack of standardization, non-interoperability and manual reconciliation across the ledgers of multiple intermediaries and counterparties.

We handle the entire clearing & settlement process in our industry, literally "walking" the data + documents from one box to the next box in the lifecycle (Figure 1) and ensuring that the data + documents get to their final destination so that the trade is completed.

We do this every day. We think we do this better than anyone else in our industry. So now we basically want to "open source" our version of the clearing & settlement process to the rest of the industry, using blockchain technology to provide the necessary trust, transparency and immutability that will be needed in order to get our framework + protocol adopted by the industry.

We're calling this system the **Open Finance Network**. Here's what we think it can look like (conceptually).



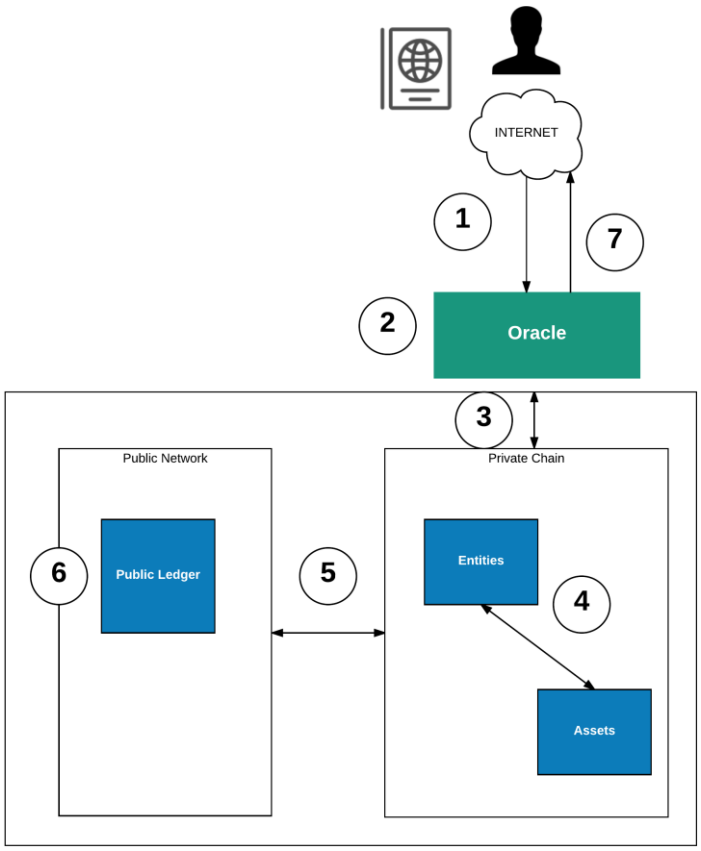
OPEN FINANCE NETWORK

In this new model, there is no need for “central” companies to hold copies of data or ensure that counterparties are being honest with each other. We can do it all with distributed ledger and smart contracts (Ethereum)! Instead of each company having to maintain their own private database of data, and having to do manual reconciliation, they can tap into the shared ledger that is available to everyone who is *authorized* to have access.

But now that’s one of the problems. While some of the data can be public for everyone to see, a lot of other stuff has to remain private and can only be accessed by authorized participants on the network. So how do we handle this? Unfortunately right now the main solution is the dreaded P word: private blockchain. Yeah, sorry, we have to do that for now, until the tech gets better. So, in order to follow regulatory guidelines and investor privacy laws, all sensitive private data is stored on a secure federated sidechain (SFS), which is then federated back to the public chain to provide full transparency, auditability and immutability to the SFS.

So what about making calls to/from this system to the existing backoffices? For that we will use oracles to communicate between on-chain and off-chain. In order to mitigate the issue of single points of failure/fraud, this transport mechanism should be accomplished via a network of multiple independent oracles responding to the same queries to reach a consensus. Due to data privacy issues, we may have to keep this internalized and not just use a 3rd party service (to be determined).

Let’s walk through a sample flow of data (high level):



1) Some action is performed on a 3rd party machine. The machine makes a call to the gateway of the OFN system (oracle).

2) The oracle verifies that the caller is authorized to access the private network.

3) The oracle acts as a traffic manager and determines what action is being requested, and directs the data to the appropriate smart contract.

4) Smart Contract A (Entities) might update Smart Contract B (Assets) based on some business logic

5) Private data is federated/hashed to the public ledger

6) Hashed data is written back to the public ledger for everyone to see and verify

7) The sender gets back confirmation that their transaction was securely recorded.