Corda

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1 Introduction of Corda

Corda is a distributed ledger platform for recording and processing financial agreements, designed to implement the *global logical ledger* with which all economic actors will interact and which will allow any parities to record and manage agreements amongst themselves in a secure, consistent, reliable, private and authoritative manner.

The Corda supports smart contract that is an agreement whose execution is both *automatable* by computer code working with human input and control and whose rights and obligations are legally enforceable. The smart contract links business logic and business data to associated legal prose, which results in financial agreements on the platform is consistent with the law. The key activities in running smart contracts includes recoding and managing the evolution of financial agreements and other shared data between two or more identifiable parties in a way that is grounded in existing legal constructs and compatible with existing and emerging regulation, choreographing workflow between firms without a central controller, supporting consensus between firms at the level of individual deals, not a global system and so on. To achieve the distributed consensus, three main tools are applied. The fist is to use smart contract logic to ensure state transitions. The second is the uniqueness and timestamping services and the last is an orchestration framework for simplifying the process writing complex multi-step protocols between different parties.

2 Comparision

- Comparison to Bitcoin. The Corda is similar to Bitcoin in immutable states, multiple inputs and outputs of transactions, and property of contract. However, there are two main differences. Instead of having a single, rigid data format, and little data associated spending rules, the state of the Corda can includes arbitrary typed data and transactions invoke not only input contracts but also the contracts of the outputs. In addition, in Corda the contract is Truing-complete and arbitrary-precise time-bonds is allowed to be specified in transactions, which is different with the limitation of input size in Bitcoin and time dependent on the mining.

- Comparison to Ethereum. Same as Ethereum, code runs inside a relatively powerful virtual machine and can contain complex logic and both of them support many kinds of financial contracts. However, instead of treating the contract as an instantiation of a program, contract is treated as a set of functions in the Corda. In addition, Ethereum is not limited in financial logic, which has more applications compared with the Ethereum.

- Compared with Hyperledger Fabric (HLF). The HLF intends to provide a modular and extendable architecture that can be employed in various industries, e.g., banking, healthcare, and supply chain, while the Corda is proposed to match the requirement from the financial services industry.