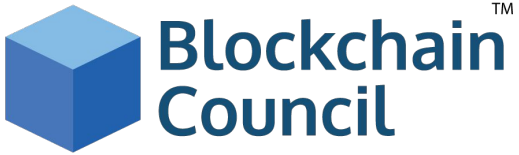


Certified Blockchain Architect

Additional Blockchain Technologies

On-chain vs Off-chain Transactions

On-Chain

- On chain transactions are the transactions which are mirrored on the public ledger, and those transactions are visible to every peer on the ledger.
- In On-Chain the transactions are not reserved for parties.
- The transactions that are happening on onchain are slower and also there is lack of privacy.
- For eg: Bitcoin

Off-Chain

- Off Chain transactions are the transactions that consists of the transfer agreement between two or more parties.
- In off-chain the transactions are reserved for trusted parties.
- Transactions on off-chain are faster and there is more privacy as compared to off chain.
- For eg: Ripple

On-chain vs Off-chain Governance

Blockchain Governance relates to decisions about two things: (i) rules of the protocols (the code) and incentives the network is based on (the economics).

Since miners are the backbone of the network and help the network to sustain it becomes tricky for blockchain to choose a governance system, because if a blockchain has an onchain governance model then it would take away the participation of governance from the miners whereas if a blockchain has an off-chain governance model the miners have a choice whether they want to participate in the chain.

In off-chain the governance is not an integral part of the blockchain whereas in the on-chain the governance is an integral part just like any other component in blockchain.

In off-chain governance the developments are firstly proposed and discussed with the other peers before being implemented where as in on-chain propose improvements once approved are directly implemented on the testnet and they further then make their way to the test net.

Lightning Network

Lightning is a decentralized network which uses the smart contract functionality in the blockchain to enable instant payments across a network of participants.

It is a layer 2 payment protocol that operates on top of the bitcoin based blockchain and it features a peer-to-peer system for making micropayments of cryptocurrency through a bidirectional payment channels without delegating custody of funds.

Lightning network is created by combining smart contracts between two peers, if at any time either party drops the channel, the channel will be closed and will be settled on Blockchain.

COCO Framework

Coco Framework is compatible with any Blockchain Solution and is trying to simplifying consensus and removes duplicate validation by creating a trusted network on nodes.

Coco framework can be seen in Hyperledger Sawtooth, Ethereum, Corda, and Quorum.

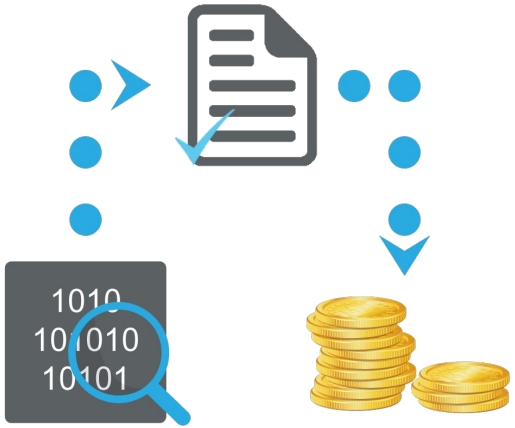
It is providing following advantages in creating enterprise ready solutions

1. Increase Throughput and Latency in Database Speed.
2. Richer, more flexible, Business specific confidentiality Models
3. Support for non-deterministic transactions.
4. Low Energy Consumption.

Coco Framework achieves these advantages by the use of Trusted Execution Environment and also know as TEE's

Smart Contracts

- Smart contract is a term used to describe computer program code that is capable of facilitating, executing, and enforcing the negotiation or performance of an agreement (i.e. contract) using Blockchain technology.
- The entire process is automated can act as a complement, or substitute, for legal contracts, where the terms of the smart contract are recorded in a computer language as a set of instructions.
- In general, Smart contracts help you exchange money, property, shares, or anything of value in a transparent, conflict-free way while avoiding the services of a middleman.



Oracle

- An oracle is a source of data or calculations, which has been accepted by multiple peers as authoritative, binding and definitive for an agreed set of values or range of calculations
- The oracle may source its data from external observations or calculate its results based on inputs received from onledger states or attachments.

- **Procedure:**
  - A node when want to use external fact it request oracle command to to assert that fact.
  - If the fact considered to be true, oracle will send back the command to node
  - Node will include that command in transaction and oracle will sign transaction it to attest that the fact is true

THANK YOU!

Any questions?

You can mail us at

hello@blockchain-council.org