BLOCKCHAIN EXPLAINER

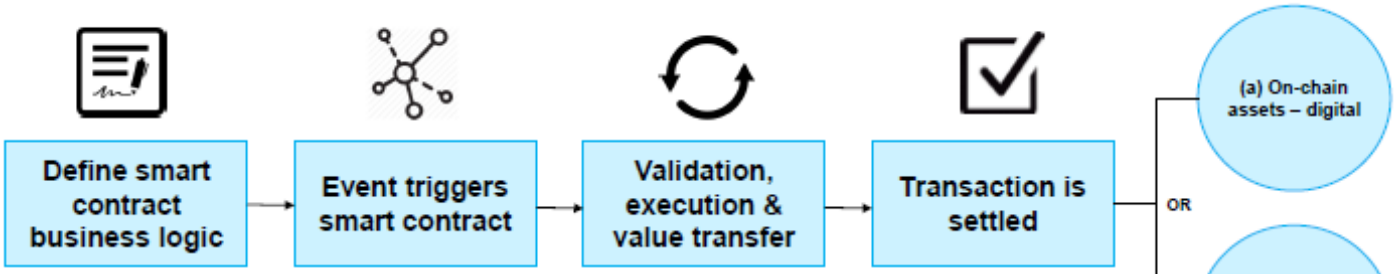
Smart Contracts / Chaincode

#SMARTCONTRACT #CHAINCODE #HYPERLEDGER

Smart Contracts are pre-written logic (in the form of computer code) that is stored and replicated on a blockchain to be executed by a network of computers resulting in ledger updates (payments, transactions, etc). Smart contracts can also trigger events that can be used to indicate the success or failure of a transaction.

Smart Contracts

How it works:



- Smart contract terms are established by all participants in network
- Specific contracts are deployed by parties transacting within the network
- Includes conditions for execution of the smart contract, e.g. specific time and date

- An event triggers the execution of a smart contract
- An event can refer to:
  - Transfer initiated
  - Information transacted

- Terms of smart contract dictate movement of value or transaction of information based on the conditions met
- Terms are validated, action is executed, and a value transfer occurs (whether it is the movement of currency/tokens or the transaction of information)

a) For digital assets on the chain, such as a cryptocurrency, accounts are automatically settled

b) For assets represented off the chain, such as stocks or physical assets, they can then be transferred physically using the transaction record on the ledger as a receipt

Chaincode

What is it?

Chaincode is a piece of code that is deployed into the network of a smart contract-capable blockchain. Chain code language varies by chain. On Hyperledger Fabric, chain code (such as the following example) can be deployed that enables interaction between peer nodes and that network's shared ledger.

Example

```
func TestExample02_Init(t*testing.T) {
     sccc := new(SimpleChaincode)
     stub := shim.NewMockStub("ex02", scc)
     //Init A=123 B=234
     checkInit (t, stub, [] [] byte{[]byte("init"), [][byte("A"),
[]byte("123"),[]byte("B"), []byte("234")})
     checkState(t, stub, "A", "123")
     checkState(t, stub, "B", "234")
}}
```


Sources: https://bitsonblocks.net/2016/02/01/a-gentle-introduction-to-smart-contracts/
https://github.com/IBM-Blockchain/learn-chaincode