



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME: 19CS622-Blockchain Technology

III YEAR /VI SEMESTER

Unit 1- INTRODUCTION TO BLOCKCHAIN

Topic 4: Blockchain ecosystem





Brain Storming



1. Blockchain terminologies
2. Define Distributed ledger.

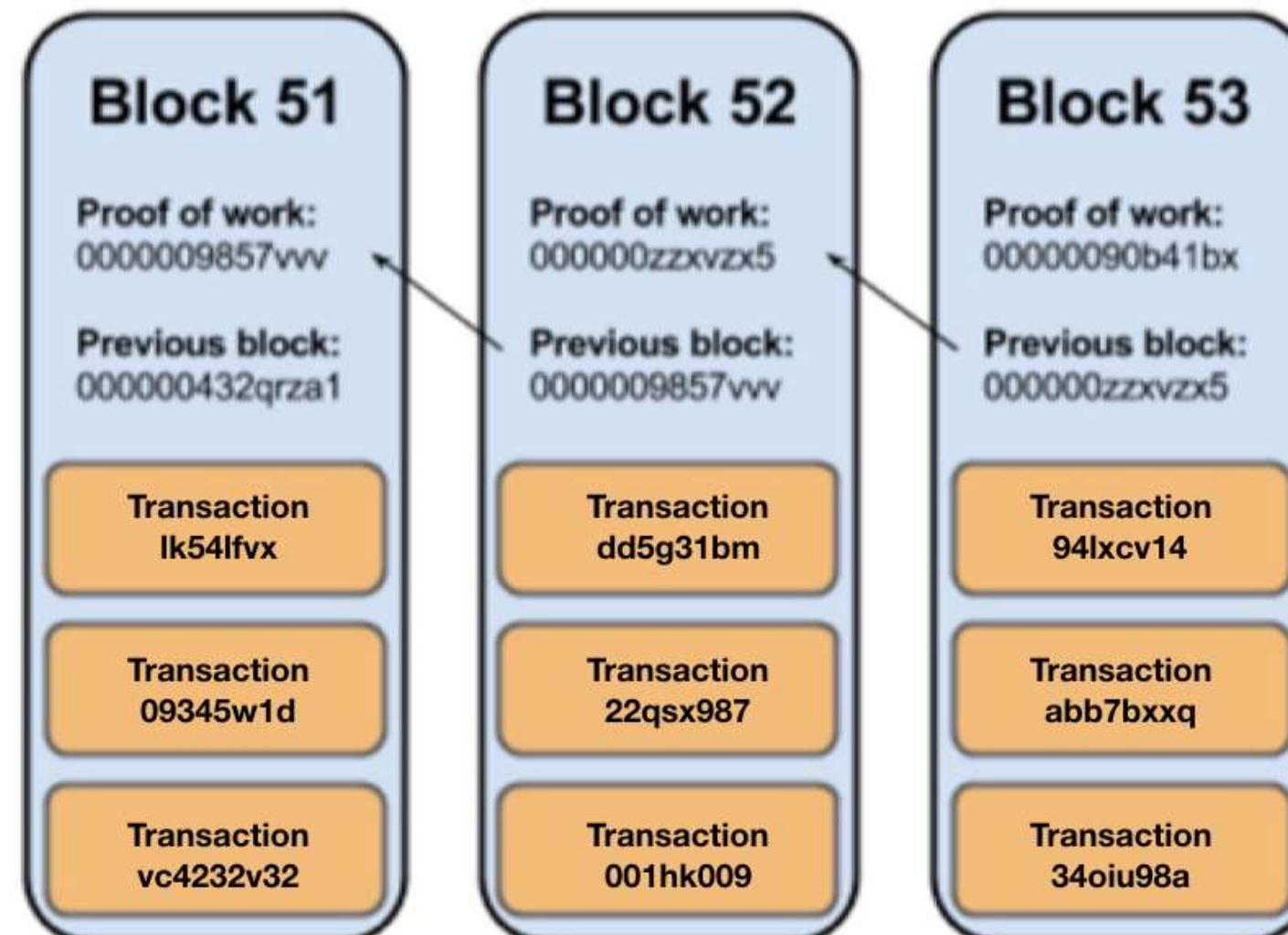


Blockchain terminologies



- **Transaction & blocks**

- A transaction is a value transfer; a block is a collection of transactions on the bitcoin network, gathered into a block that are hashed and added to the blockchain.



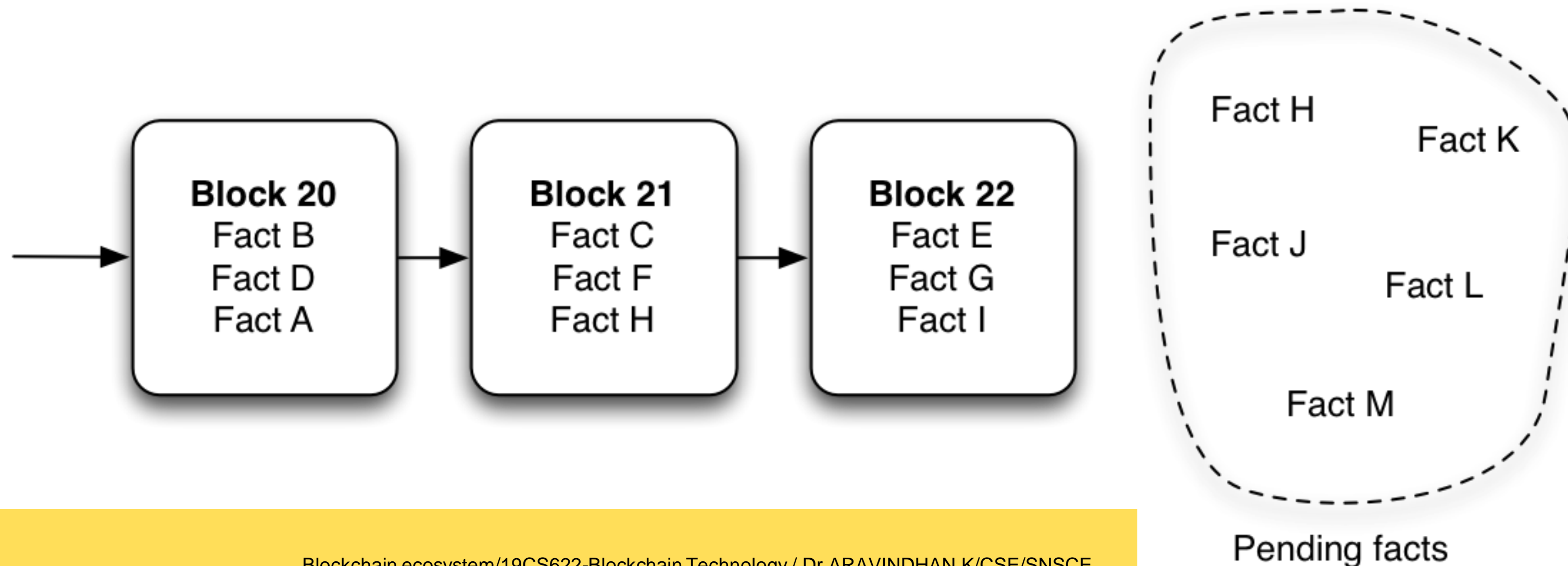


Blockchain terminologies



- **Mining**

- This process of solving cryptographic problems using computing hardware also triggers the release of cryptocurrencies



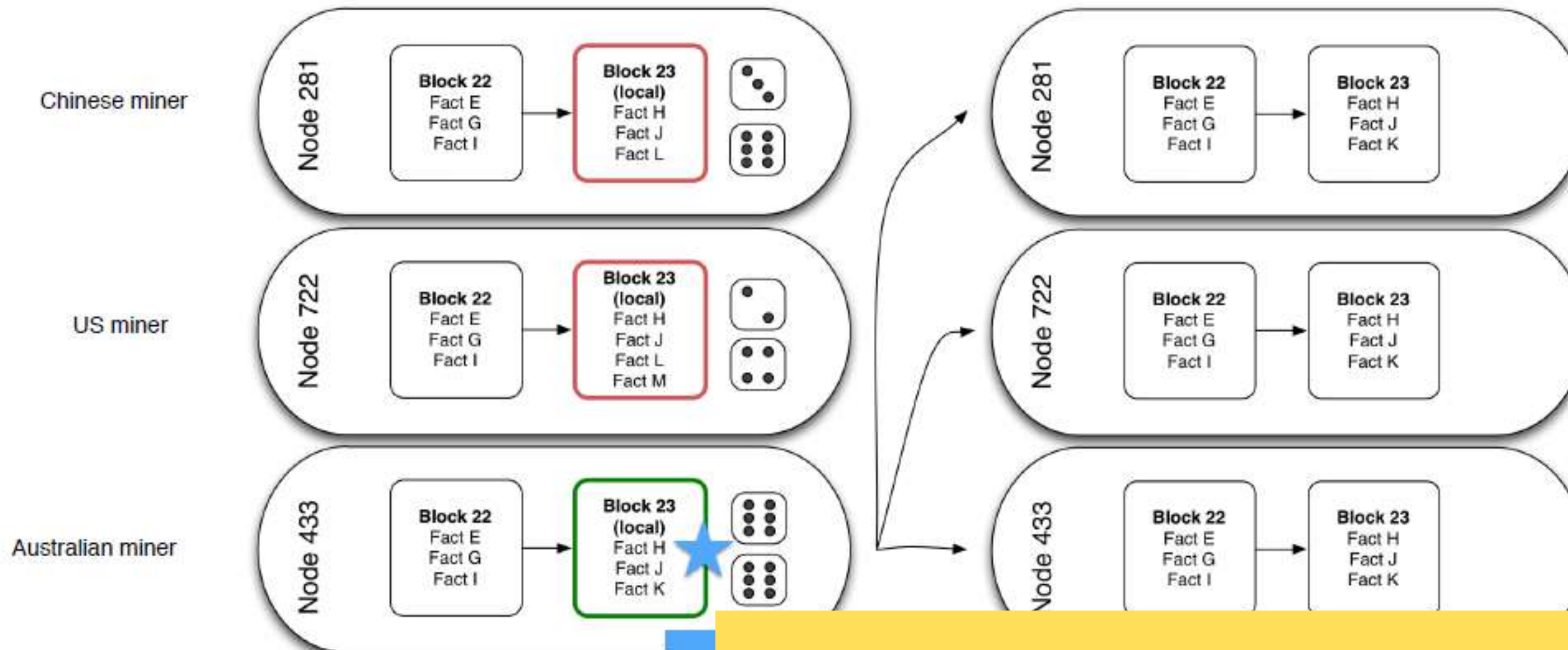


Blockchain terminologies



- **Mining**

- The process by which transactions are verified and added to a blockchain.





Blockchain terminologies



- **Mining**

- Miners on the network select transactions from pools and form them into a 'block'.

Tx #302939
size: 1000 KB
fee: 0.02 BTC
0,00002 BTC/Byte



Tx #329832
size: 200 KB
fee: 0.01 BTC
0,00005 BTC/byte



which transaction should I add to my block?

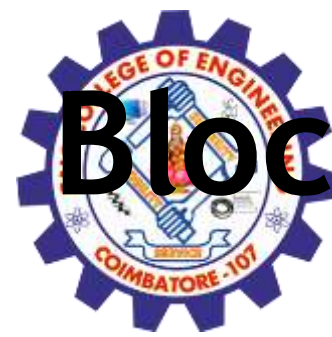


Blockchain terminologies



- **Forks**

- A fork is the creation of an ongoing alternative version of the blockchain, by creating two blocks simultaneously on different parts of the network. This creates two parallel blockchains, where one of the two is the winning blockchain.
- When does it happens?
 - Block found at the same time
 - Software incompatibility
 - “We don’t agree” split



Blockchain terminologies



- **Bitcoin**

- Crypto currency, first asset based on Blockchain
- Used for drug/weapons e-commerce, ransom ware
- Used for remittance, speculation, store of value

“What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.”

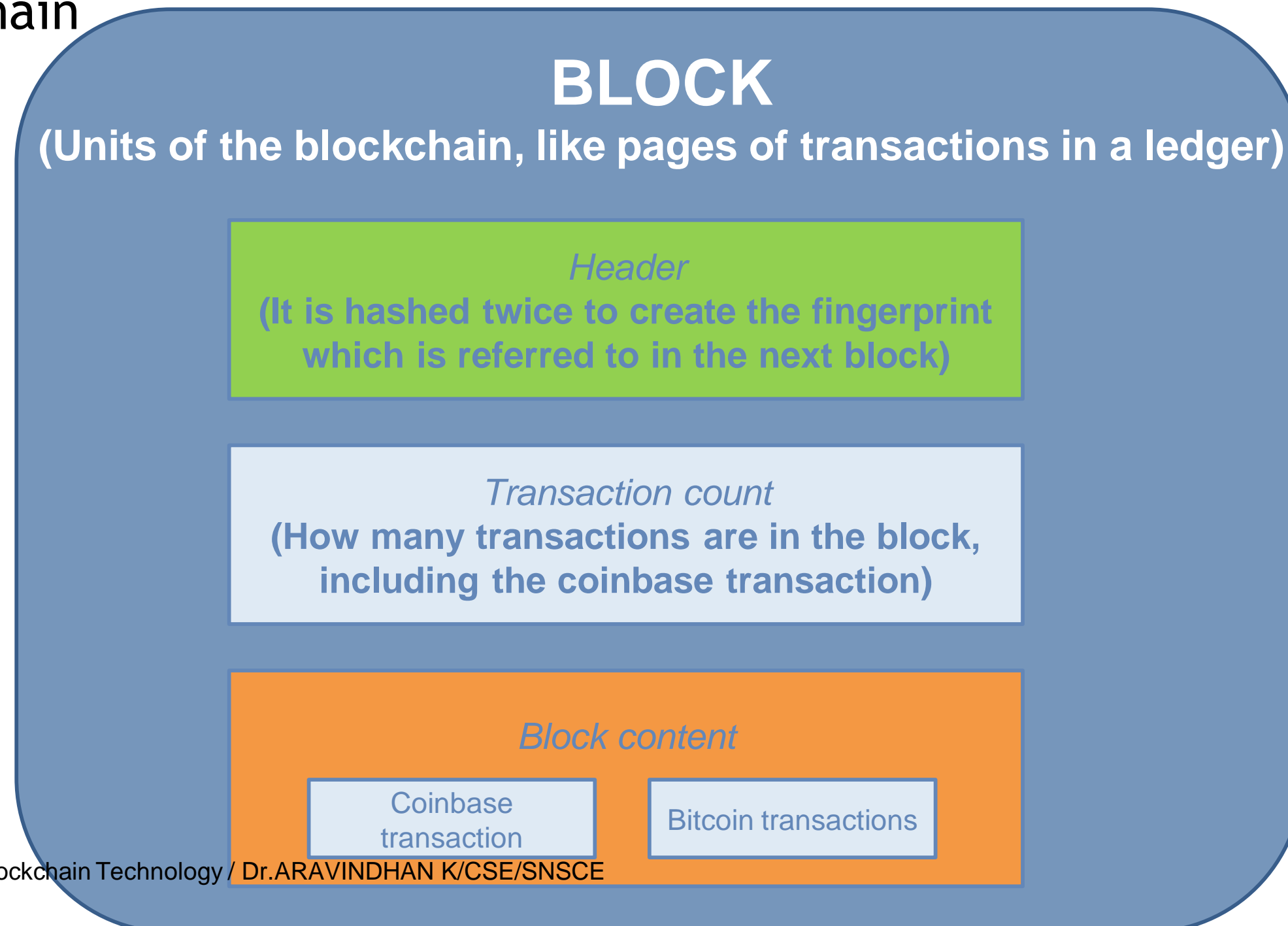
Satoshi Nakamoto - October 31st, 2008



Blockchain terminologies



- **Bitcoin**
 - Inside Bitcoin's Blockchain





Blockchain terminologies



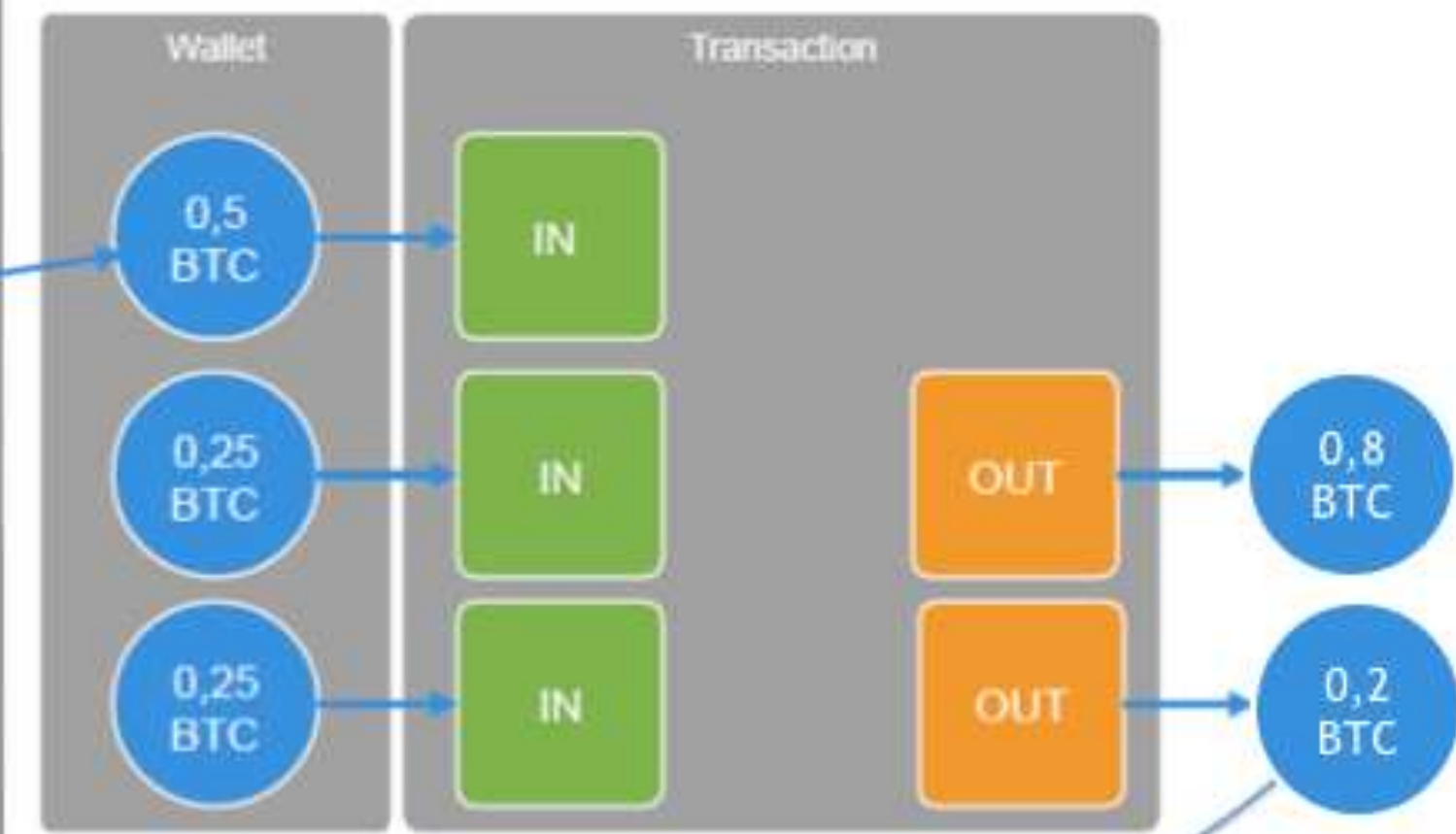
- **Bitcoin**

- Inside Bitcoin's Blockchain
 - *Block content* : Transaction Flow

Mining Coinbase



Regular Address to Address Transaction



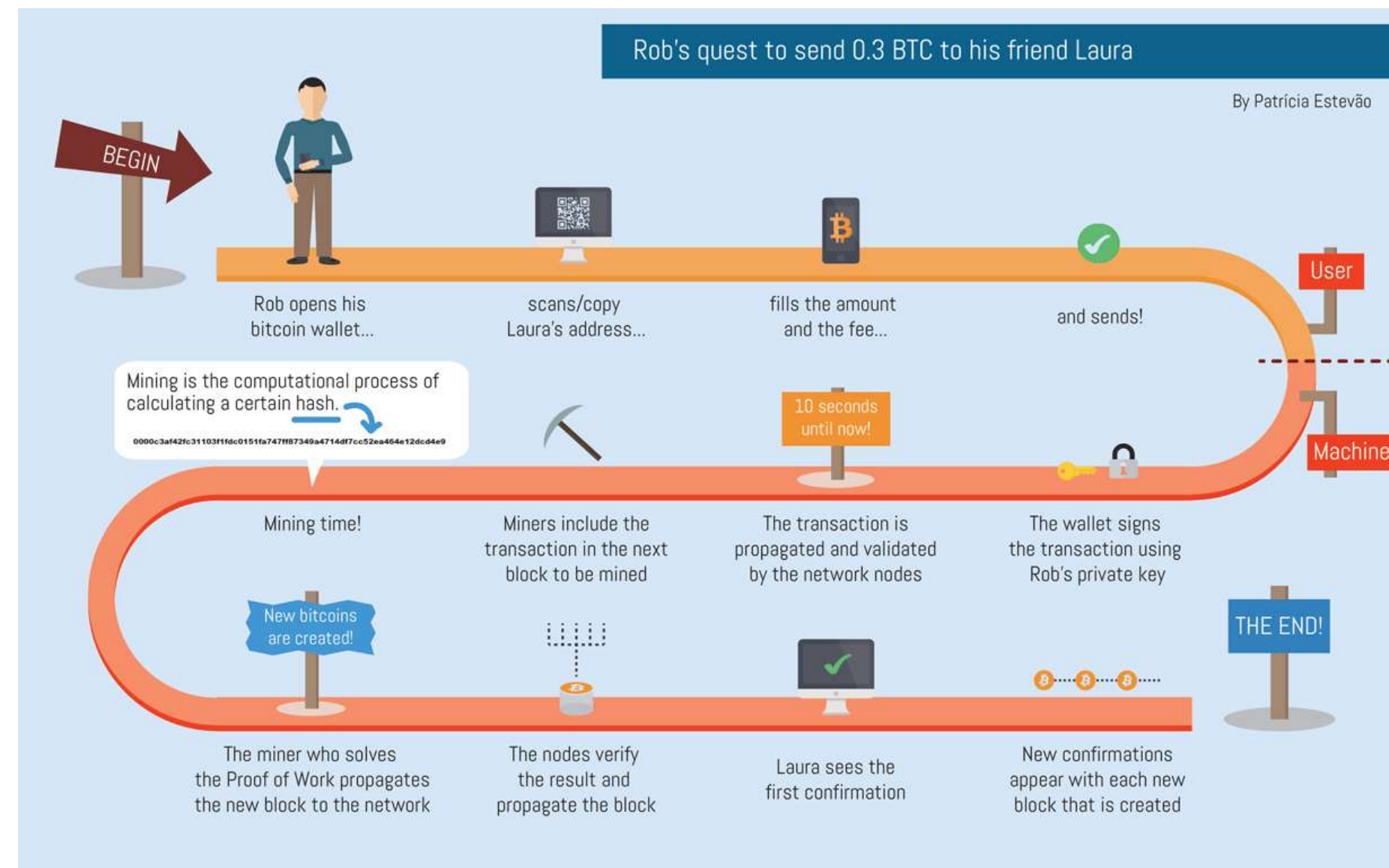
Change back to sender's wallet



Blockchain terminologies



- **Bitcoin**
 - How the money transfer works





Blockchain terminologies



- **Ethereum**

- Proposed in late 2013 by Vitalik Buterin (cryptocurrency researcher and programmer)
- Online crowdsale during summer 2014
- Bitcoin on steroids!

“A blockchain is a magic computer that anyone can upload programs to and leave the programs to self-execute, where the current and all previous states of every program are always publicly visible, and which carries a very strong cryptoeconomically secured guarantee that programs running on the chain will continue to execute in exactly the way that the blockchain protocol specifies.”

Vital Vitalik Buterin





Blockchain terminologies



- **Ethereum**

- Decentralised app platform (dapps)
- Transaction & smart-contracts ledger
- Based on the Ethereum Virtual Machine (EVM)
- Cryptocurrency called ether (ETH)

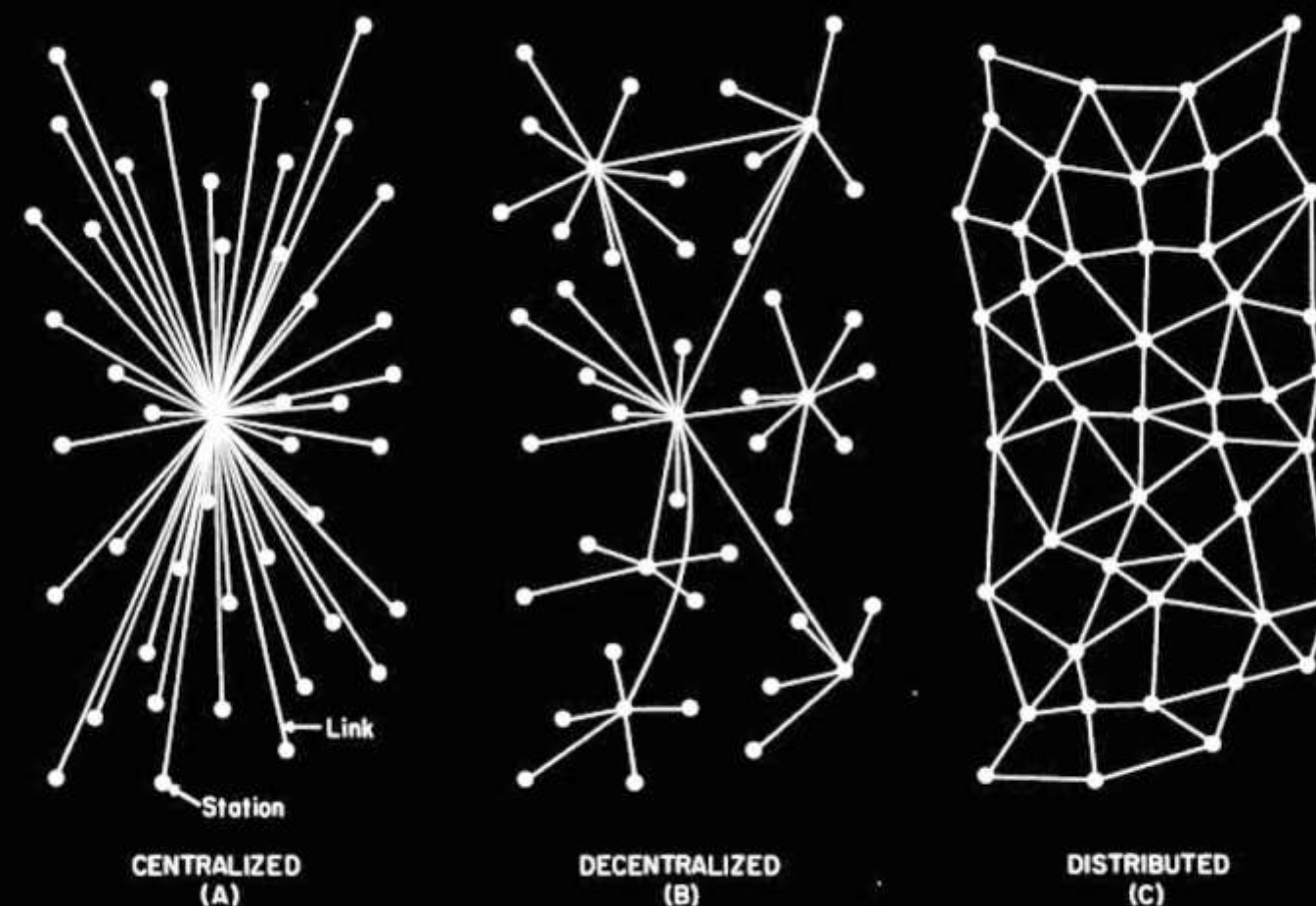


FIG. 1 – Centralized, Decentralized and Distributed Networks



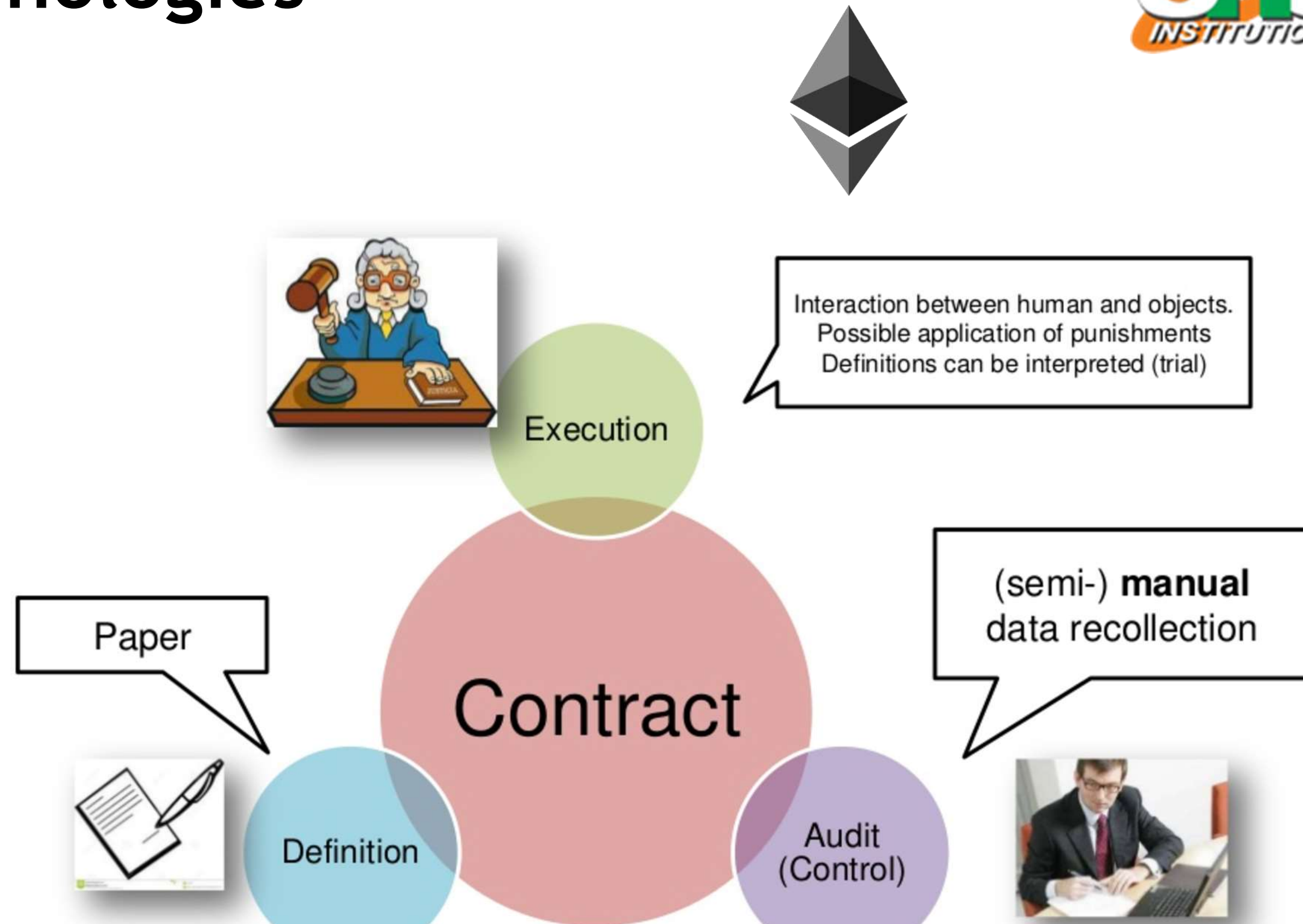
Blockchain terminologies



- **Ethereum**

- *Smart Contract*

How a “Traditional” contract works:



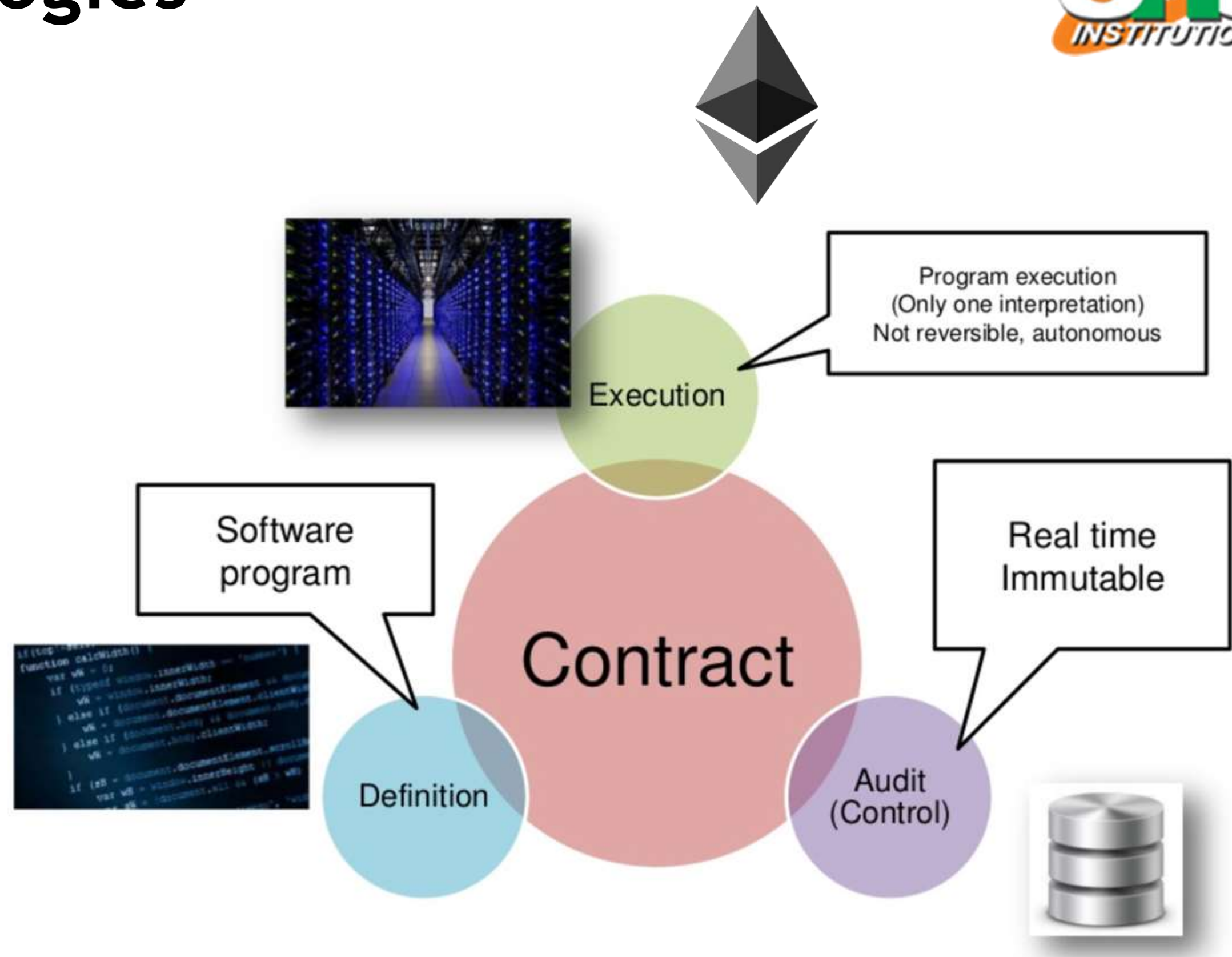


Blockchain terminologies



- **Ethereum**
 - *Smart Contract*

How a “*Smart Contract*” contract works:





References



TEXT BOOKS

1. Mastering Bitcoin: Unlocking Digital Cryptocurrencies, by Andreas M Antonopoulos 2018
2. Imran Bashir, “Mastering Blockchain: Distributed Ledger Technology, Decentralization and Smart Contracts Explained”, Second Edition, Packt Publishing, 2018.
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1. William Mougayar, “Business Blockchain Promise, Practice and Application of the Next Internet Technology, John Wiley & Sons 2016.
2. Josh Thompson, ‘Blockchain: The Blockchain for Beginnings, Guild to Blockchain Technology and Blockchain Programming’, Create Space Independent Publishing Platform, 2017.
3. Arvind Narayanan, “Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction”, Princeton University Press, July 19, 2016.
4. Henning Diedrich, Ethereum: Block chains, Digital Assets, Smart Contracts, Decentralized Autonomous Organizations-2016

Thank You