



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

COURSE NAME: 19CS622-Blockchain Technology

III YEAR /VI SEMESTER

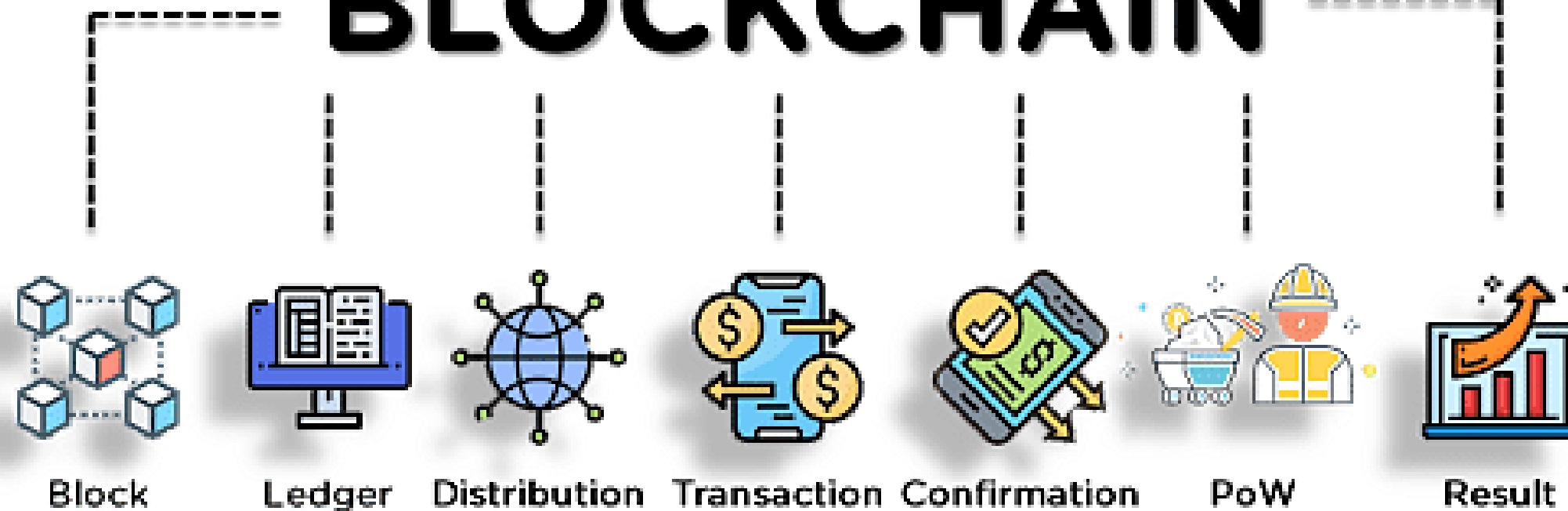
Unit 1- INTRODUCTION TO BLOCKCHAIN

Topic 1: History of Blockchain



What is A Blockchain?

BLOCKCHAIN



- A Block chain is a decentralized database that is shared among computer network nodes.
- A blockchain is a distributed database that allows direct transactions among two parties without the need for a central authority.

Blockchain = (DL + CP + C),

where DL= Distributed Ledger, CL= Consensus Protocols,
C= Cryptography.

- Data is divided into common blocks linked together using cryptographic hashes as unique IDs.

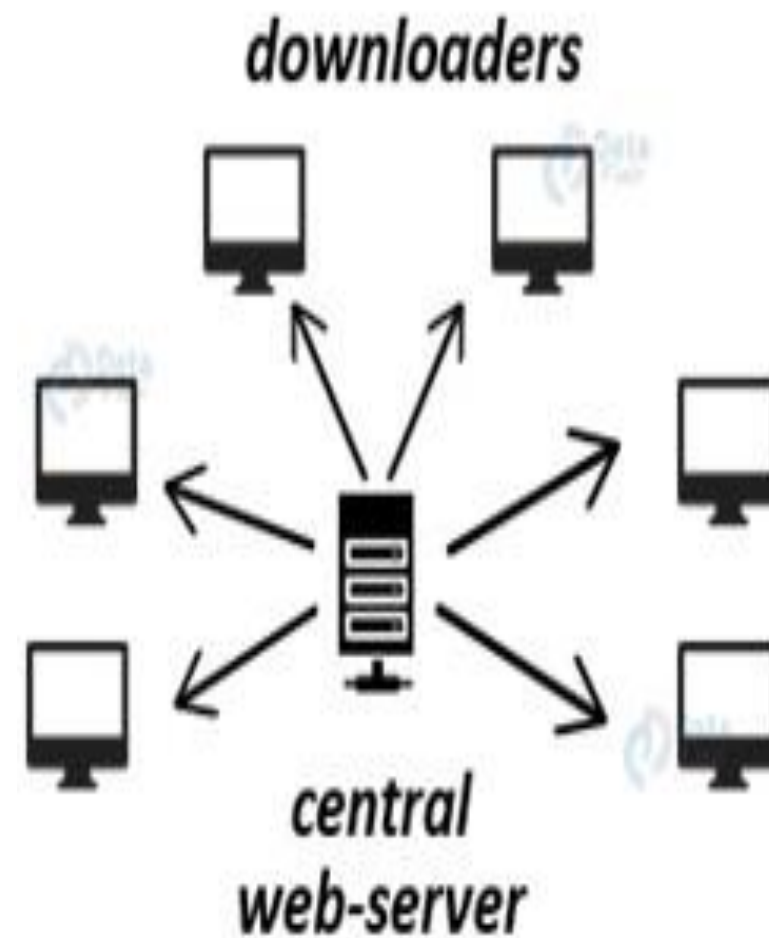


Block chain Basics – Key Elements



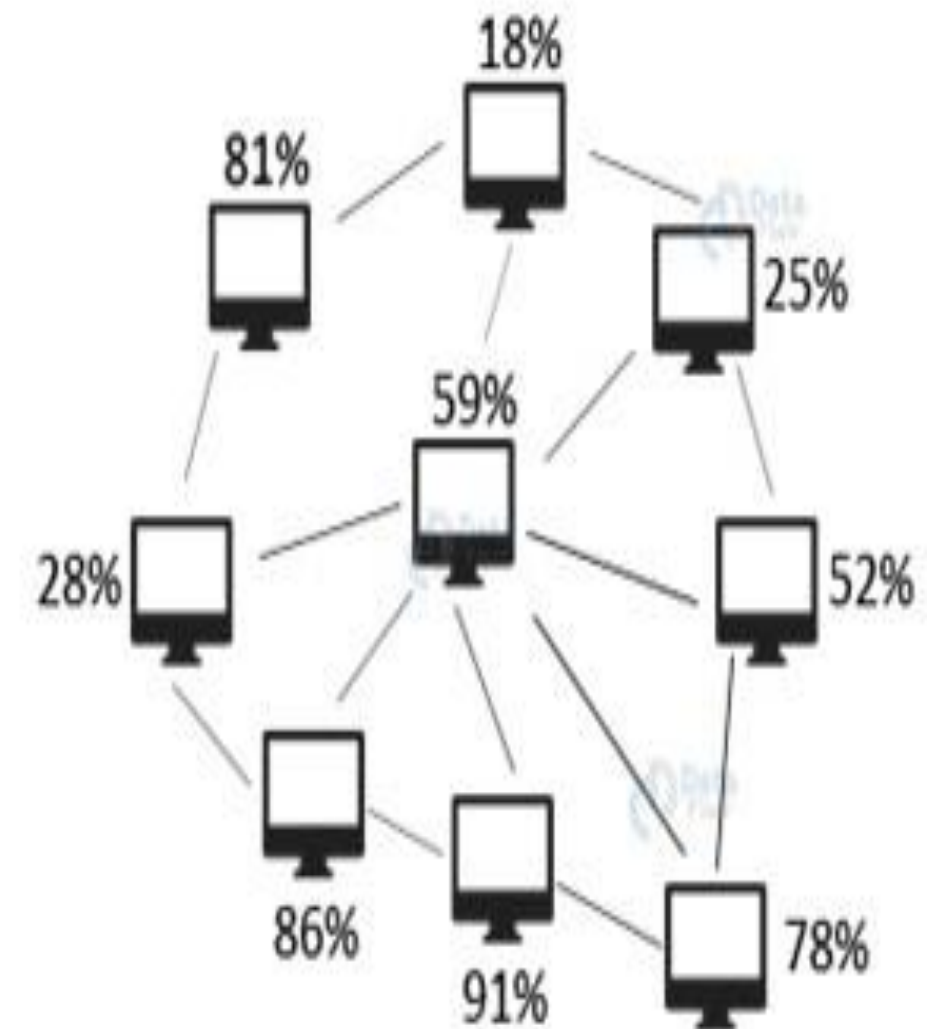
- Peer-to-peer Network
- Distributed Ledger System
- Key Cryptography
- Hashing
- Proof-of-Work
- Merkle Tree and Merkle Root

Traditional Centralized Downloading



- Slow
- Single Point of Failure
- High Bandwidth Usage for Server

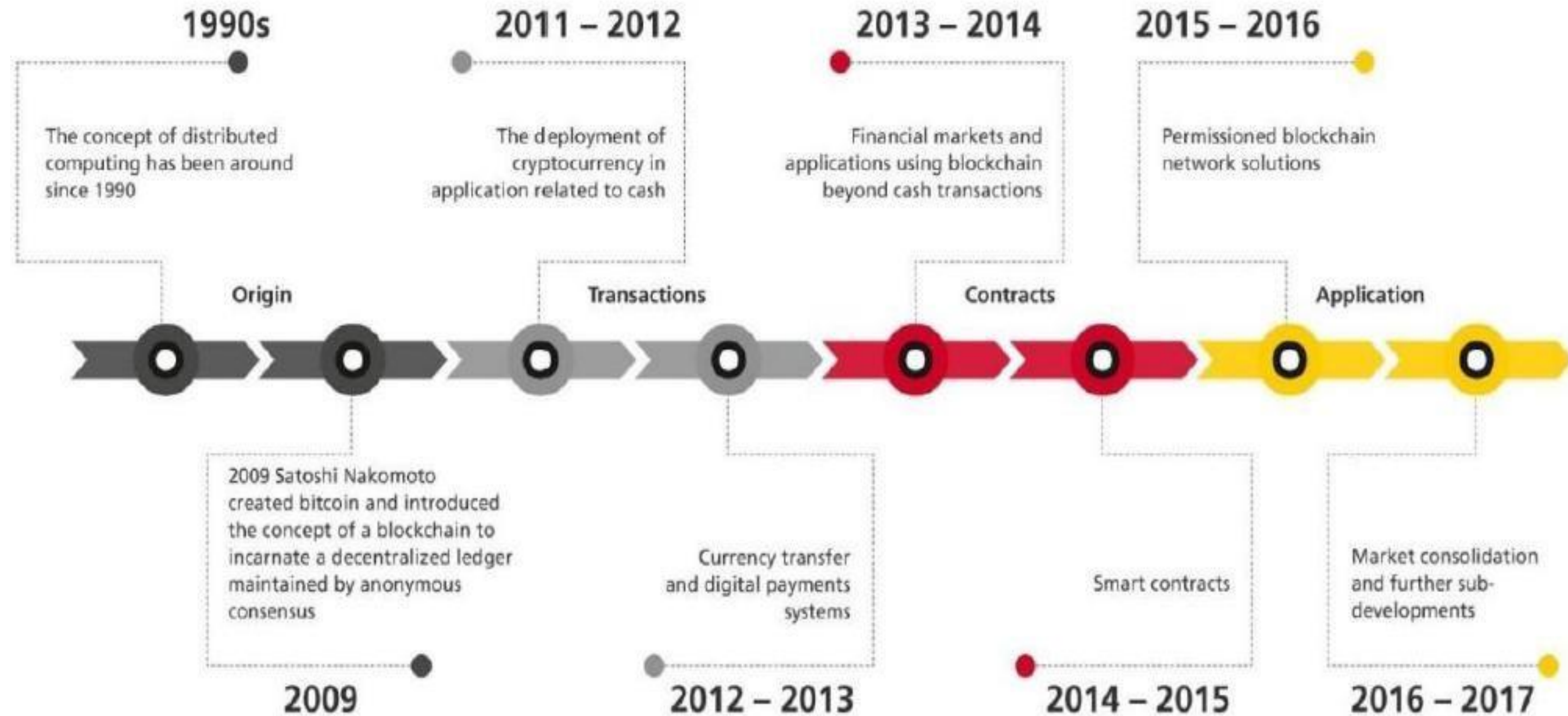
Decentralized Peer-to-Peer Downloading



- Fast
- No Single Point of Failure
- All Downloaders are Uploaders also



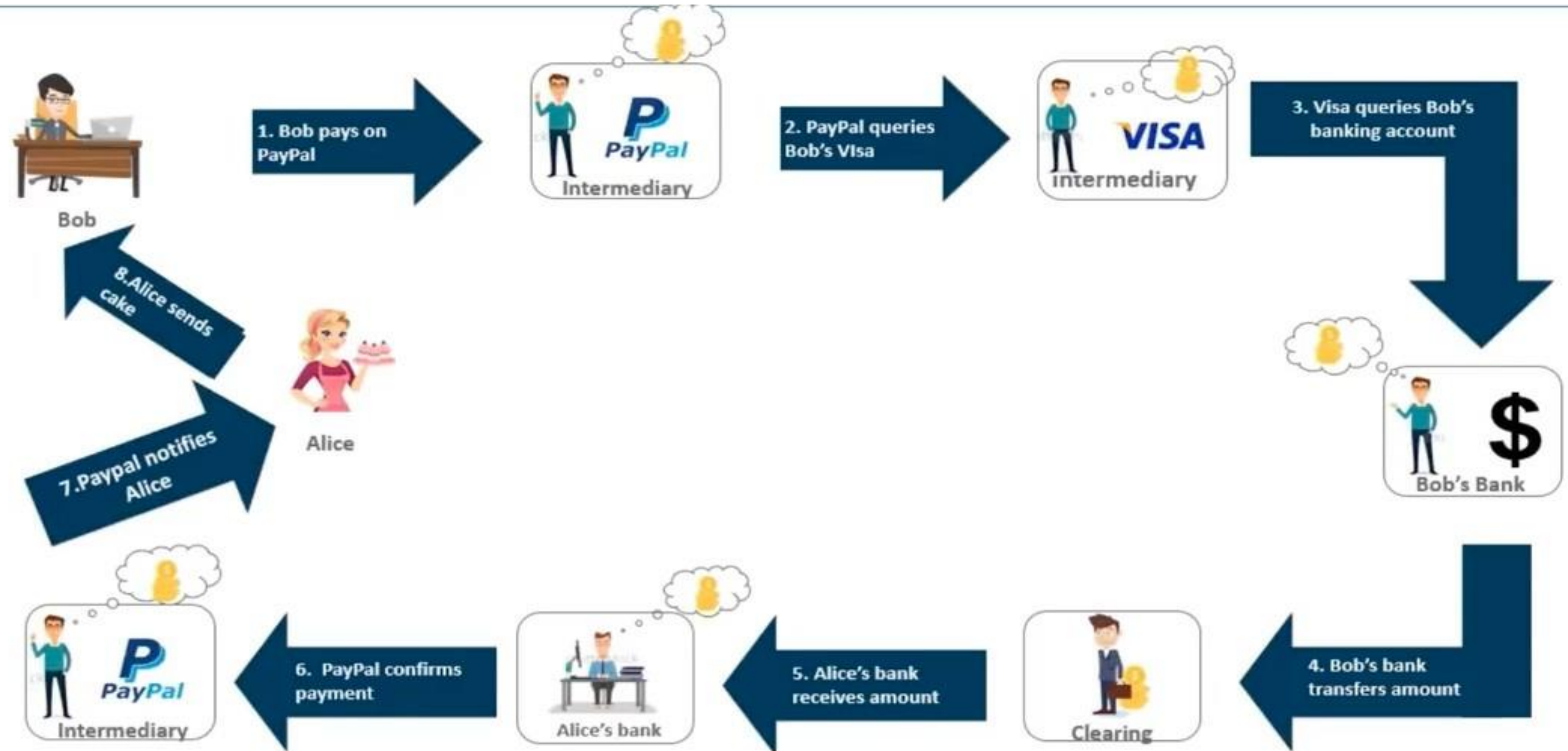
BLOCKCHAIN HISTORY



Traditional Transaction



Traditional Transaction flow



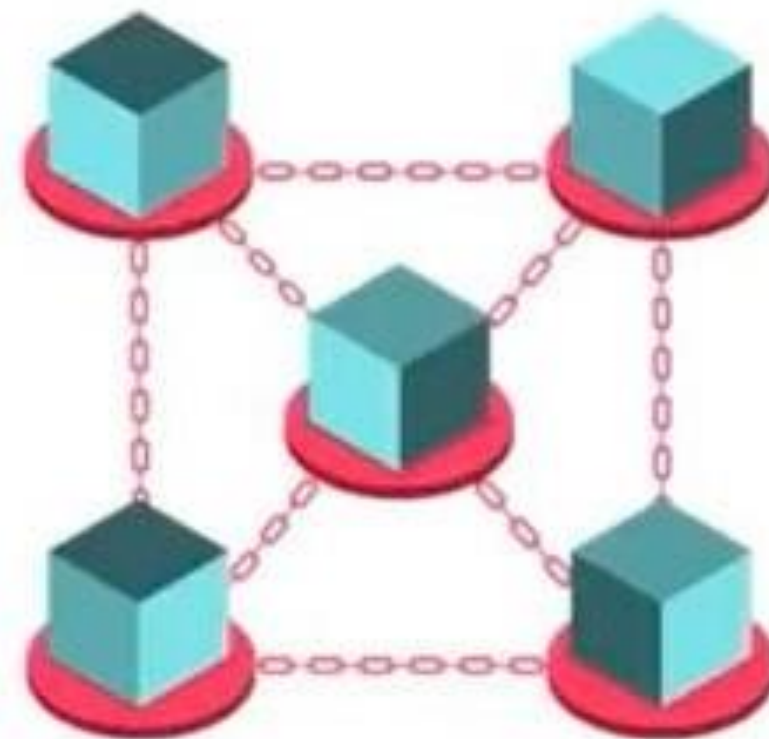


How Blockchain works??

Decentralization

The logo for SNS INSTITUTIONS, with the letters 'sns' in a stylized font and 'INSTITUTIONS' in a smaller font below it.

Bob



Alice

Bob want's to send money to Alice over a blockchain network!



Blockchain Transaction flow!!!!



Bob wants to send money to Alice

Every block is broadcast to every party on the network

After validation the block is added to the chain



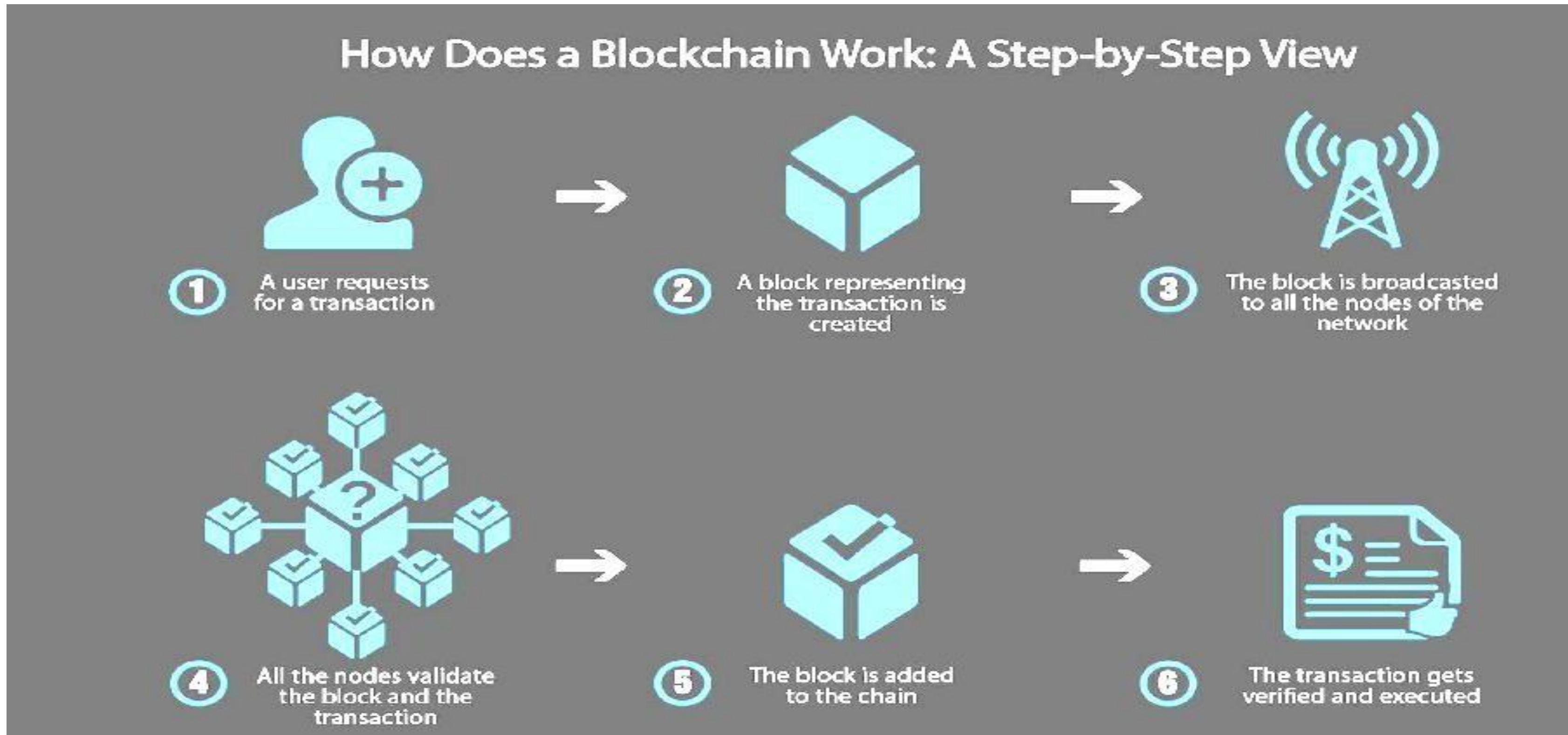
The transaction is represented online as a block

Those in the network approve the validity of the transaction

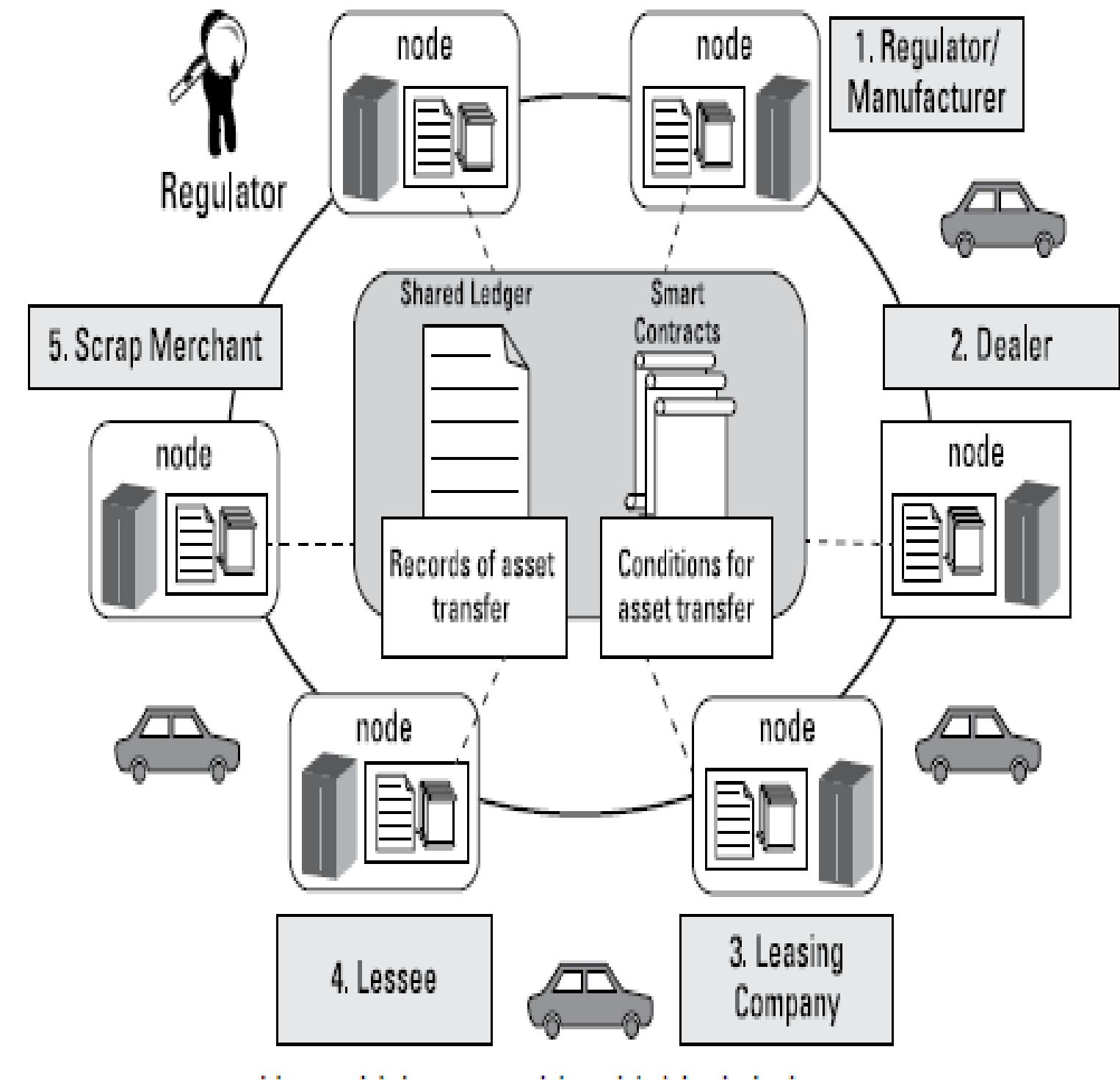
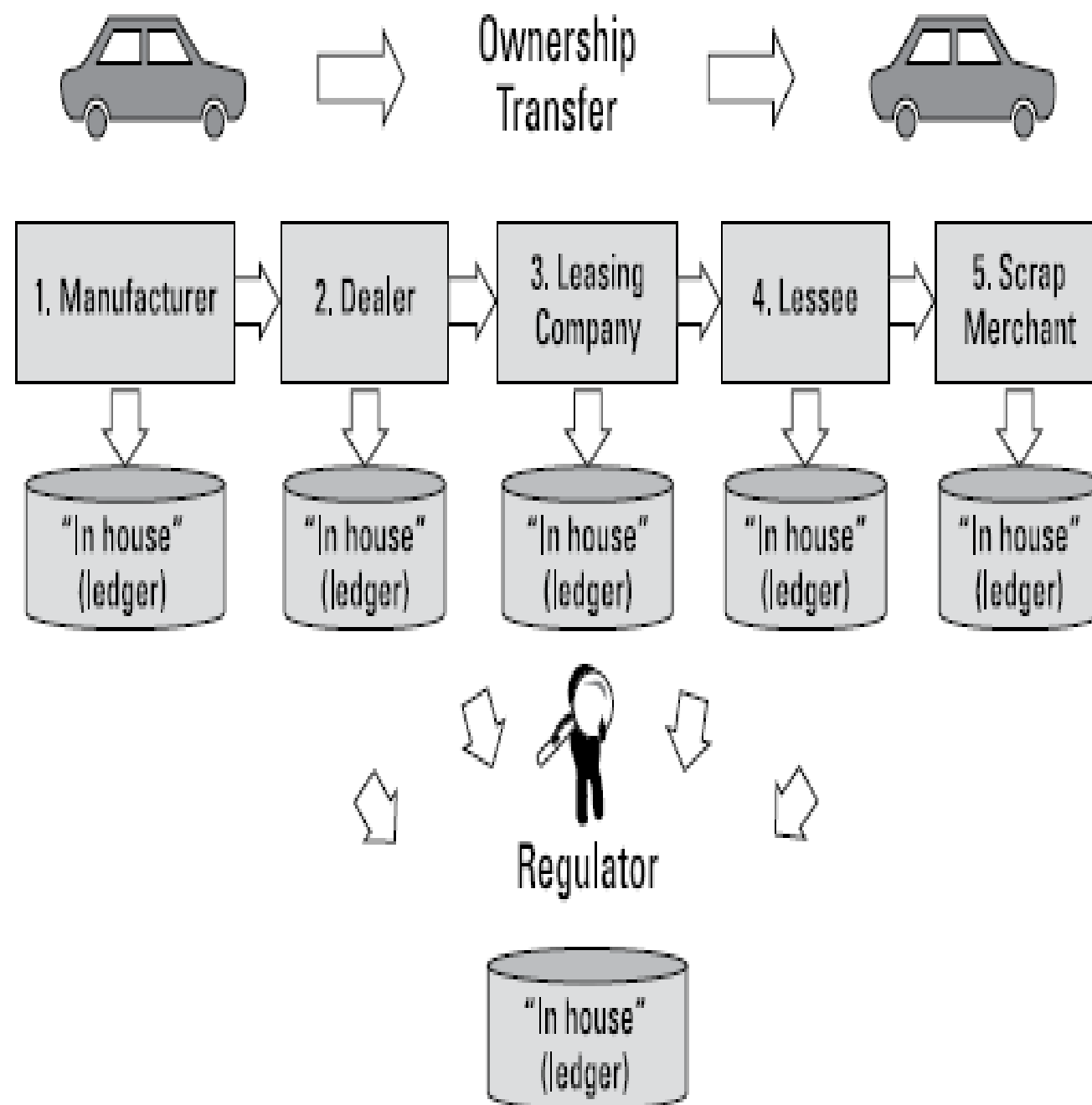
Alice receives her money from Bob



Step by Step Working of Blockchain



Example : Car Ownership without and with Block Chain





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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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