

Beyond the Hype

BLOCK

CHAIN



ORACLE®



Ledger





Centralized Ledger

- One to Many
- Central Authority Behavior
- Central Governance

Decentralized Ledger

- Multi-One to Many
- Master–Slave Governance
- Full Database Replication

Decentralized



Distributed



Distributed Ledger

- No Central Authority
- No Central Governance
- No Master-Slave
- Distributed Trust

Blockchain Framework



Distributed Replicated Ledger

Consensus

BLOCKCHAIN

Crypto Security



Bitcoin



From Bitcoin Financial Institute with external support
Subject: Bitcoin, P2P e-cash paper
Date: 2008-10-01 (10:10:00 GMT) | 1 year, 52 weeks, 1 day, 3 hours and 20 minutes ago

The date is shown as a red arrow pointing to the date field.

The paper is available at:
<http://www.bitcoin.org/bitcoin.pdf>

The main description:
Bitcoin-protocol is powered with a peer-to-peer network.
No need for central trusted parties.
Transactions can be anonymous.
New coins are made from mathematical digital proof-of-work.
The proof-of-work can not be generated after seeing the
network or previous blocks.

Abstract: A distributed electronic cash system
Abstract: A peer-to-peer network of electronic cash would
allow online payments to be sent directly from one party to another
without the need for a central authority. Invention: Invention:
Digital signatures provide part of the solution, but the main
difficulty is how to generate a trusted time-stamp on a proof
of work. The paper is attached to the distributed
network using a peer-to-peer network. The network consensus
is achieved by having the same data spread across all
nodes of the network. Nodes can be stopped without
affecting the network. The longer the chain the more
proof of the sequence of blocks, the proof that in total
the work the proof of the network, they can generate the longest
chain and hence are entitled to the next block. The network should
reward winners. Average fee distributed as a fee to the
winner and hence the longest chain is the proof of work.



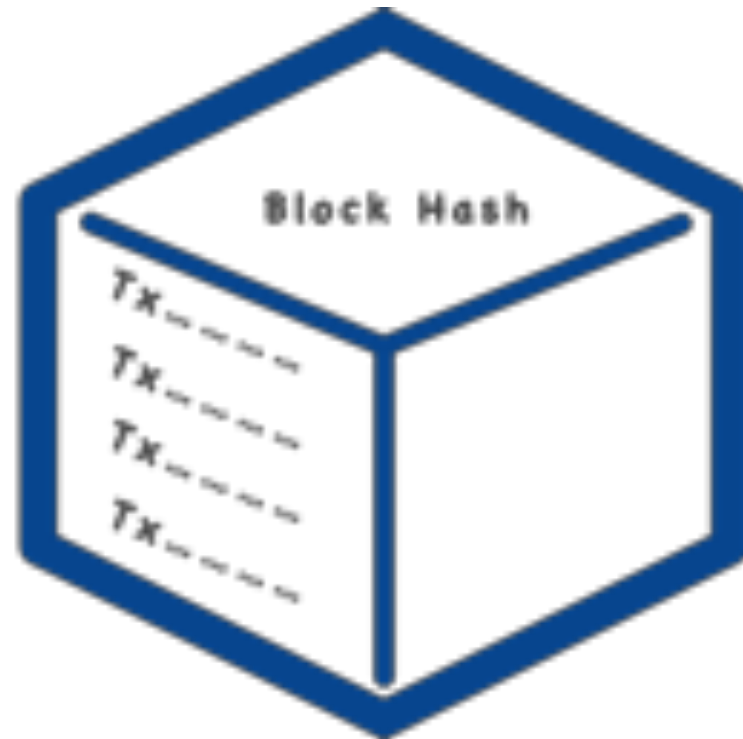
Blockchain: Transaction



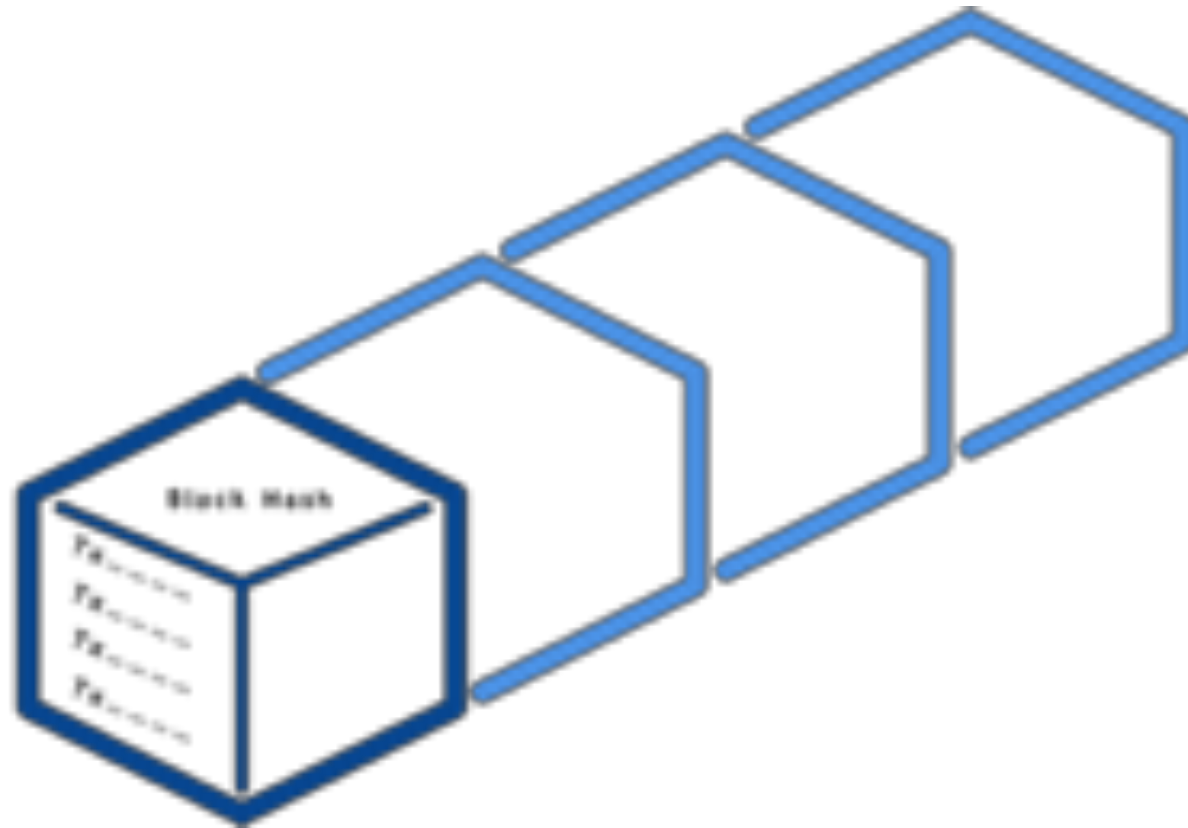
Blockchain: Crypto Key



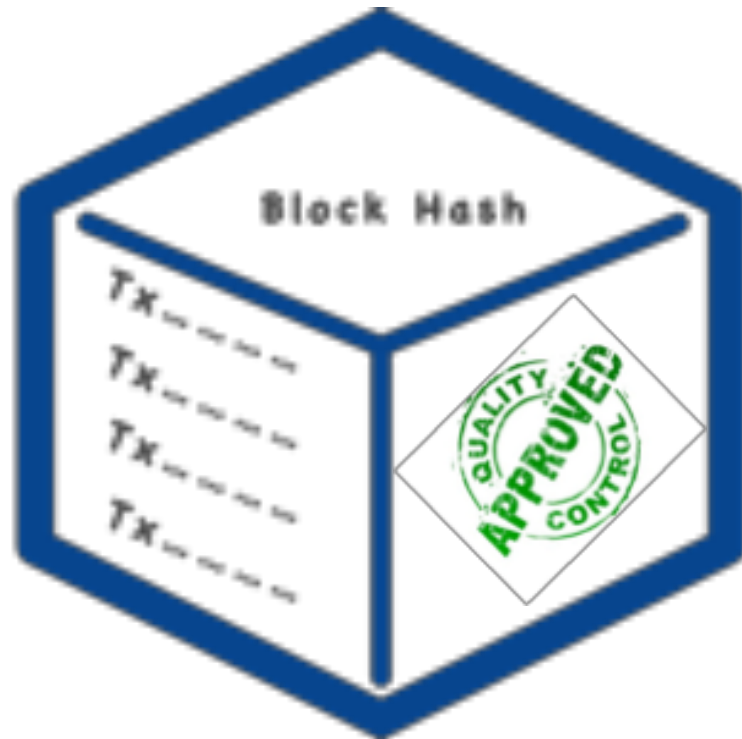
Blockchain: Block Generation



Blockchain



Consensus





- Transactions consolidated in new block by action of particular nodes calling Miners
- Distributed back-office
- Every nodes in network could check and validate Miners action
- Miners works by «Consensus» meccanism
- «Malicious Peer Nodes» discovery built-in consensus, pairing Bizantin General Problem
- Honestly of Peer Nodes incetive by «Economic incentive» (Nash game theory)
- The miners are compensated for their consent by demonstrating it with proof-of-work «PoW»

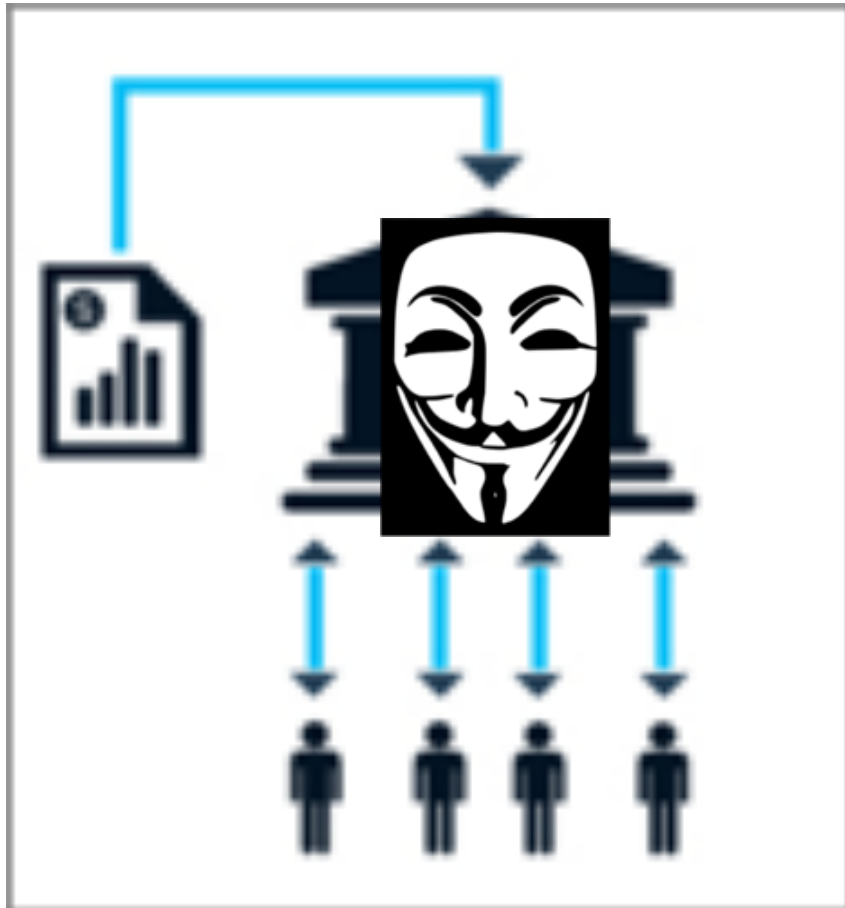
Main Features Blockchain



- Reliability
- Transparency
- Solidity
- Irrevocability
- Digitality

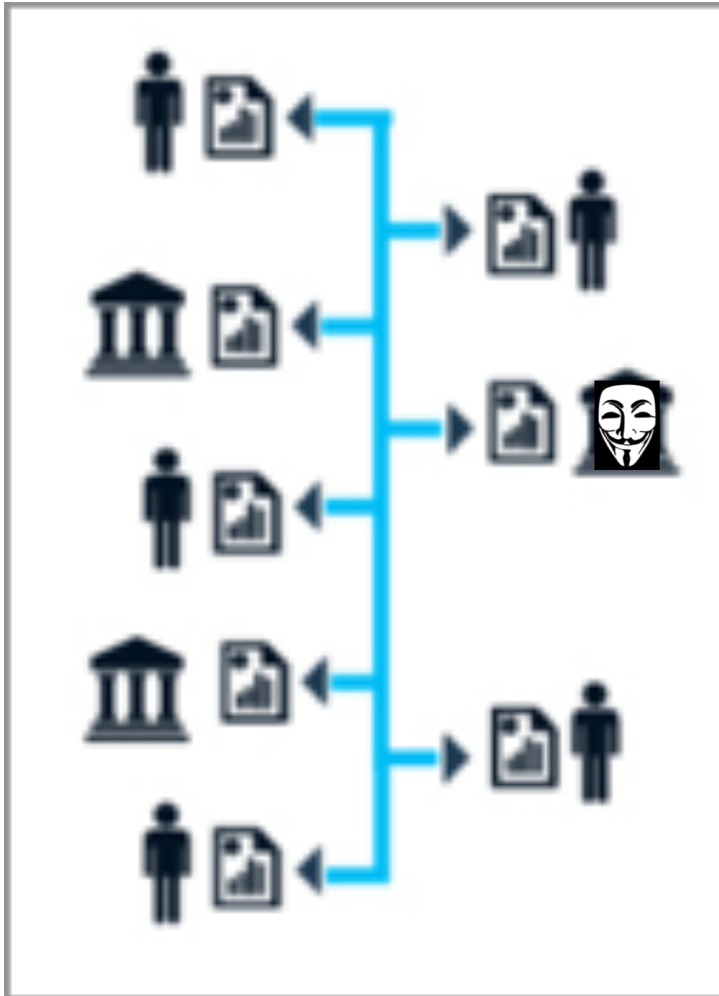


Risk: Centralized Ledger Technology



- Based on central authorities that determine their authoritativeness.
- The central authorities are the only ones that can guarantee the security and validity of the information.
- A malicious attack that alters the state of central authority allows you to manipulate and manage transactions.

Risk: Distributed Ledger Technology



- It can be Public (permissionless) or Private (Permissioned)
- Observable by various authorized counterparties
- Transactions transparent only to counterparties

Smart Contract



Fonte Wikipedia

«...Contract derives from the Latin *contractus* (past participle of *contrahere*, 'to draw together, to bring together', composed by *con-*, derivate from *cum* and *trahere*), term that originally in Roman law indicated not a source of obligations but the same mandatory legal relationship arose from a lawful act, as opposed to the relationship obligatory by an unlawful act (*delictum*)....»



Contract of sale of a slave, written on a clay tablet from the Sumerian era dating back to 2600 BC and preserved in the Louvre Museum

Smart Contract



A Smart Contract is a set of 1 or more computer algorithms that allow to perfect the terms of a legal contract. Basically there is no differentiation between the functioning of a smart contract or a purchase contract of material that implements internally automated functions for the improvement of the supply. Ex. Vending Machine, Amazon, etc ...



Use Cases



Two Types of Blockchain

• Public (a.k.a. "Permissionless")

- Anyone can join the network and have a copy of the ledger, e.g., Bitcoin, Ethereum
- This involves the computer resource intensive mining process to add blocks cryptographically
- Consensus models based on computationally expensive algorithms requiring the processing power of many nodes to ensure security.

• Permissioned

- Closed ecosystem: members are invited to join and keep a copy of the ledger
- Who members are in the real (legal) world is known (to at least the operators of the blockchain, but not necessarily all participants)
- Consensus protocols depend on knowing who the members are

Oracle Cloud Blockchain



Oracle Autonomous Blockchain Cloud Service 'OABCS'



Oracle Cloud Blockchain



Network Setup



Using Channels

Organizations can only read the ledgers they are granted access to.

Oracle Cloud Blockchain



The screenshot shows the Oracle Blockchain Cloud Service Console Dashboard. At the top, it says 'ORACLE Blockchain Cloud Service Console' and 'BLOCKCHAIN 1'. Below this is a blue header 'Blockchain: Dashboard' with navigation tabs for 'Dashboard', 'Network', 'Nodes', 'Channels', and 'Channels'. The main content area is titled 'Blockchain Summary' and features five large numbers: 1, 6, 1, 2, and 1. Below these are three summary cards: 'Blockchain Health' showing '100% Running' and '0 Stopped'; 'Transaction Execution' with 'Failed' and 'Succeeded' bars; and 'Ledgers Summary' with a table of metrics.

Metric	Value
Blockchain Health	100% Running
Blockchain Health	0 Stopped
Transaction Execution - Failed	0
Transaction Execution - Succeeded	0
Ledgers Summary - Blocks	0
Ledgers Summary - Block Speed	0.00
Ledgers Summary - Transaction Activity	0
Ledgers Summary - Deployments	1
Ledgers Summary - Nodes	0



Oracle Blockchain Applications



Intelligent Track and Trace



Monitor transactions and movement of assets or goods across organizations

Lot Lineage and Provenance



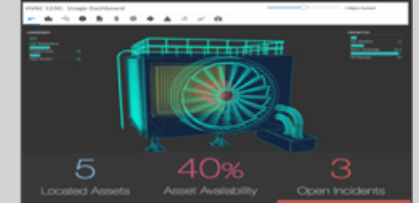
Pedigree, Serialization and Genealogy of product components

Intelligent Cold Chain



Comprehensive Track and Trace system for food and pharmaceuticals safety

Warranty and Usage Tracking



Product usage tracking for Rental, Warranty, Service, & Insurance for high-value assets

SMART CONTRACTS, DISTRIBUTED LEDGER ON BLOCKCHAIN PLATFORM

Shipment Notifications, Bill of Lading, Manufacturing work orders

Purchase order, Sales order

Service records, Warranty information

Assets, Equipment and cargo conditions, Predictive Insights

SOURCES OF INPUT



Supply Chain



ERP



Customer Experience



Internet of Things

ORACLE

Blockchain Beer



Blockchain Beer



Blockchain Beer



Question and Answer



TOGETHER WE BUILD THE FUTURE

