Blockchain Fundamentals

Blockchain Made Easy

Created by 101blockchains.com

Abstract

- What exactly is Blockchain Technology
- Must know Blockchain Terms
- What are Smart Contracts?
- Blockchain Digital Transformation
- How Blockchain will change our world?

What is Blockchain?

“Open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way" wikipedia.org

- ✓ Open
- ✓ Distributed
- ✓ Ledger
- ✓ P2P
- ✓ Permanent

How Does a Blockchain Work: A Step-by-Step View

1. A user requests for a transaction

2. A block representing the transaction is created

3. The block is broadcasted to all the nodes of the network

4. All the nodes validate the block and the transaction

5. The block is added to the chain

6. The transaction gets verified and executed

Remarkable Benefits of Blockchain Technology

Faster Settlement
Way faster than the manual process of validation

Immutable
The transactions cannot be undone if they are already on the blockchain

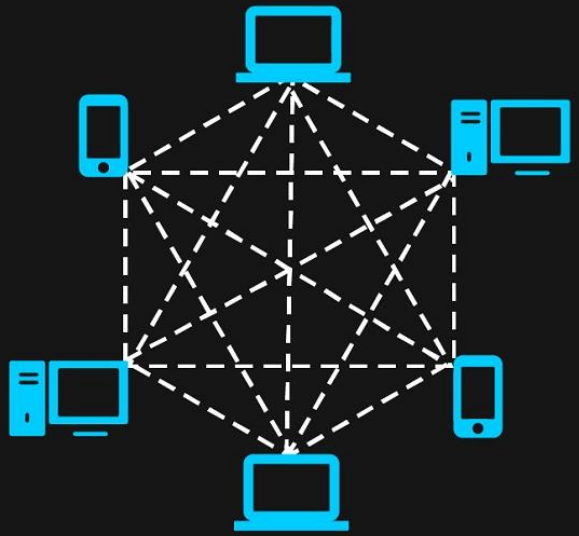
Increase Network Capacity
Much more capable than the traditional network

Shared and Distributed
Blockchain technology offers a shared and distributed ledger that is open for all users

More Secured
Much safer than the traditional methods

Decentralized
Not dependable on server based technology and no one has authority over the system

Public vs Private Blockchain Network



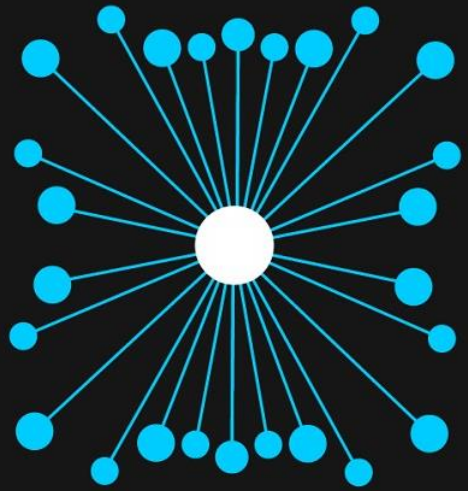
Public Blockchain: Permissionless

An open network system where all the devices can freely access without any kind of permission. The ledger is shared and transparent.

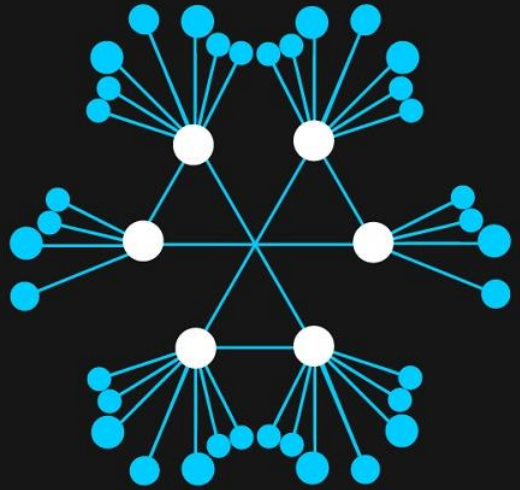
Private Blockchain: Permissioned

A user has to be permitted by the blockchain authority before he/she could access the network. The user might join only if he/she gets an invitation.

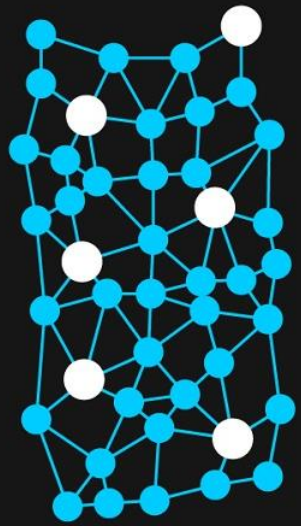
Centralized vs Decentralized vs Distributed Network: An Overview



Centralized Network
All the nodes are connected under a single authority



Decentralized Network
No single authority server controls the nodes, they all have individual entity



Distributed Network
Every node is independent and interconnected with each other

Must know Blockchain Terms

- **Airdrop:** Airdrop is a process of distributed free cryptocurrency coins to the general public.
- **Altcoin:** Altcoin is any cryptocurrency other than Bitcoin.
- **Bitcoin:** Bitcoin is the first cryptocurrency that came into existence in 2009 by Satoshi Nakamoto. It is a digital currency that doesn't require a centralized authority to work or function.
- **DAO:** DAO stands for the decentralized autonomous organization.
- **dApp:** dApp stands for the decentralized applications that run without the control of a central authority.
- **ERC-20:** ERC-20 is a technical standard for issuing tokens on Ethereum blockchain.
- **Ether:** Ether is the fuel that powers distributed Ethereum network.
- **Fiat:** Fiat is the government-controlled currency and is declared as legal tender.
- **ICO:** ICO stands for Initial Coin Offering that is used by startups to raise funds by selling tokens.
- **Mainnet:** Mainnet is a working blockchain product that also provides the ability to transfer digital currencies between users in a blockchain environment.

Must know Blockchain Terms

- **51% Attack:** 51% attack is a common vulnerability with blockchain technology. It can be exploited by a group of miners if they control 51% of the hash rate of the whole network.
- **Utility Token:** Utility token is token that has a utility attached to it. They are used for accessing a product or service.
- **DYOR:** DYOR stands for "Do Your Own Research“.
- **FOMO:** FOMO stands for Fear Of Missing Out.
- **FUD:** FUD stands for Fear, Uncertainty, and Doubt .

Smart Contract Explained

1

- A contract is created between two parties
- Both parties remain anonymous
- The contract is stored on a public ledger

2

- Some triggering events are set i.e. deadlines
- The contract self-executes as per written codes

3

- Regulators and users can analyze all the activities.
- Predict market uncertainties and trends

How Do Smart Contracts Work?

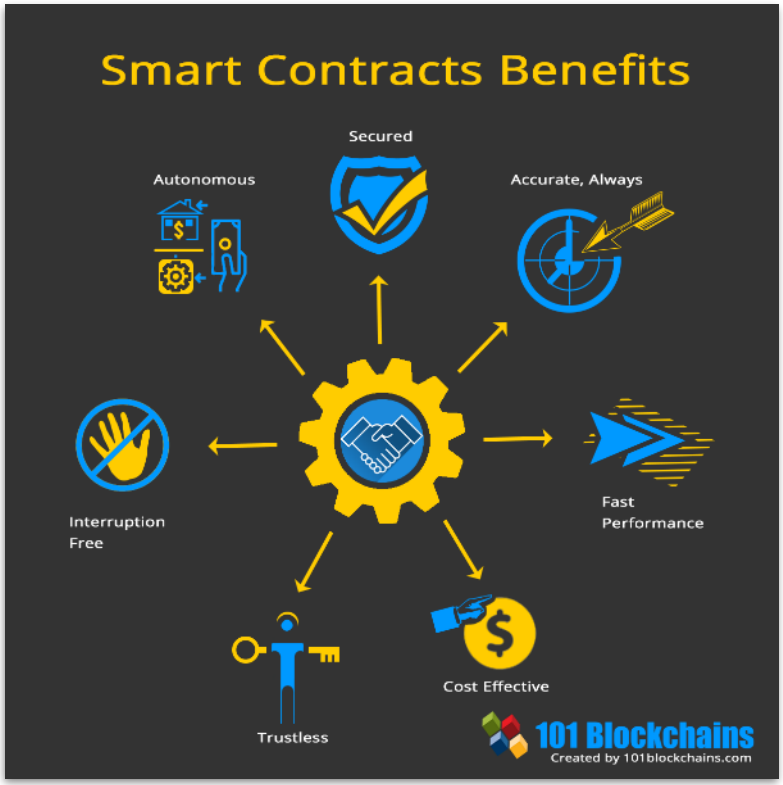
Registered

Automated Settlement of Contracts

No Third Party Need

What Are the Advantages of Smart Contracts?

- ✓ Total Transparency
- ✓ No Miscommunication
- ✓ Efficient Performance
- ✓ No Paperwork
- ✓ Backup
- ✓ Trustworthy
- ✓ Guaranteed Outcomes



Disadvantages of Smart Contracts

- × Confidentiality
- × Error
- × Rogue Contracts

> "Whereas most technologies tend to automate workers on the periphery doing menial tasks, blockchains automate away the center.
>
> Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi drivers work with the customer directly."
>
> Vitalik Buterin

Smart Contracts Use Cases

Record Storing

Trading Activities

Supply Chains

Mortgage

Real Estate Market

Employment Arrangements

Copyright Protection

Healthcare Services

Government Voting

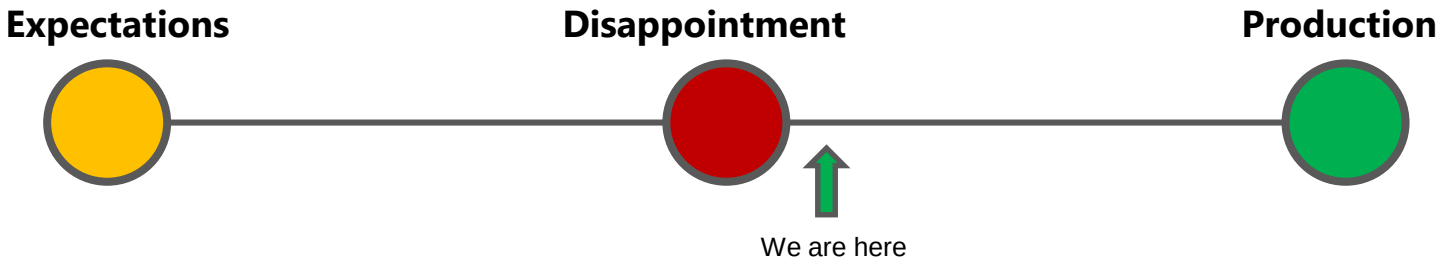
Insurance Claims

Internet-of-Things (IoT)

Is the Blockchain overhyped?

*"The truth in no online database will replace your daily newspaper, no CD-ROM can take the place of a competent teacher and **no computer network** will change the way government works."*

Clifford Stoll 2/26/95



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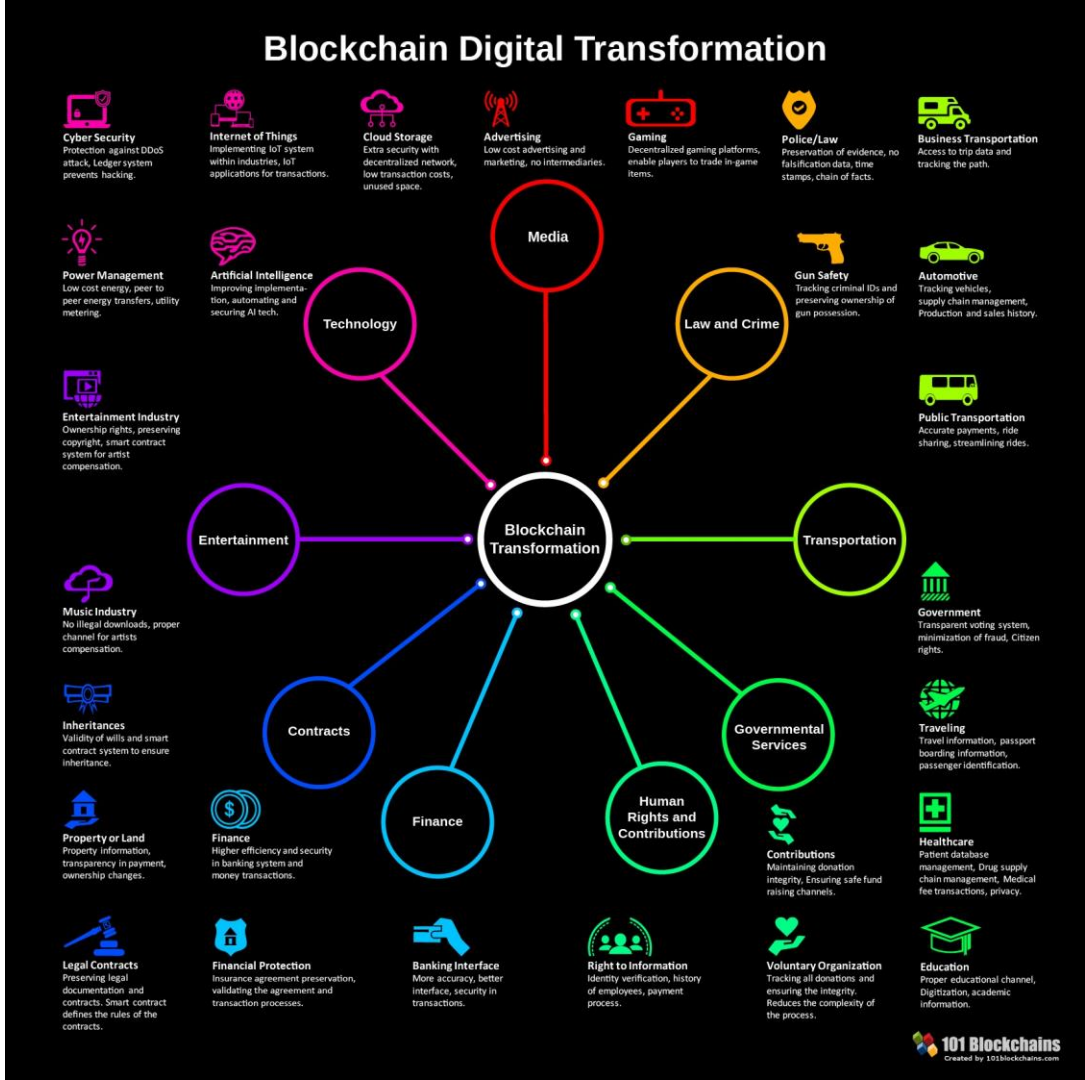
9 Verticals of Blockchain Transformation

1. Technology
2. Media
3. Law and Crime
4. Transportation
5. Governmental Services
6. Human Rights
7. Finance
8. Contracts
9. Entertainment

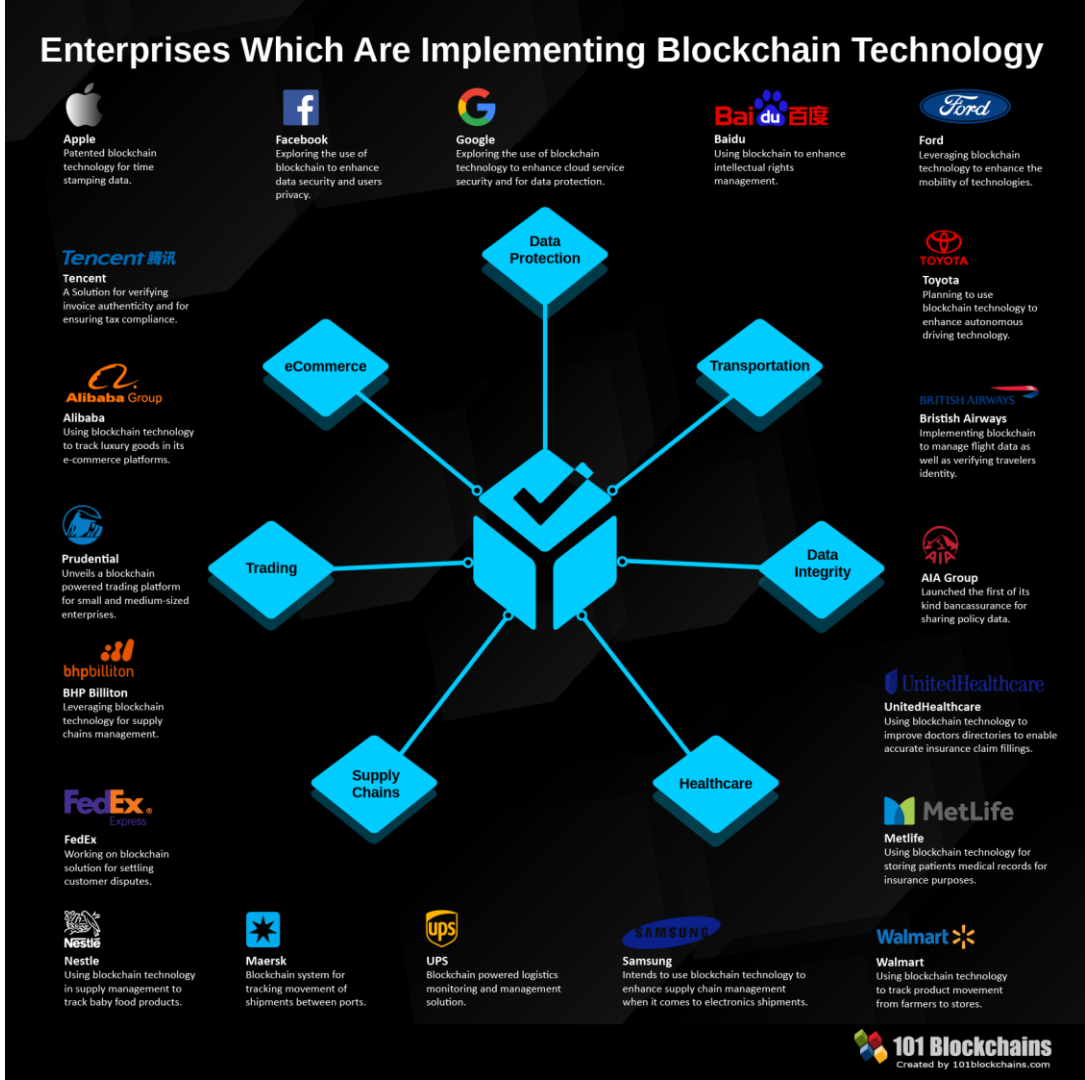


2017-2018 Leading Sectors

- Supply Chains
- Fintech

And more...

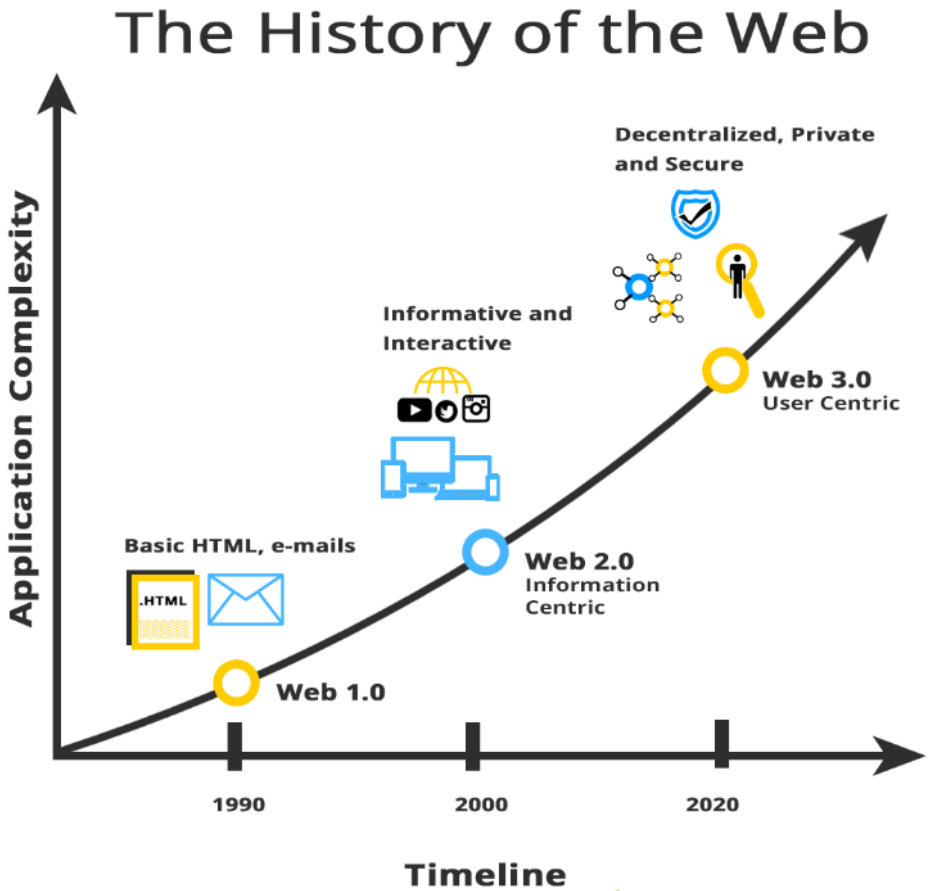
- Retail
- Shipping
- Mining
- Healthcare
- Insurance



Web 3.0

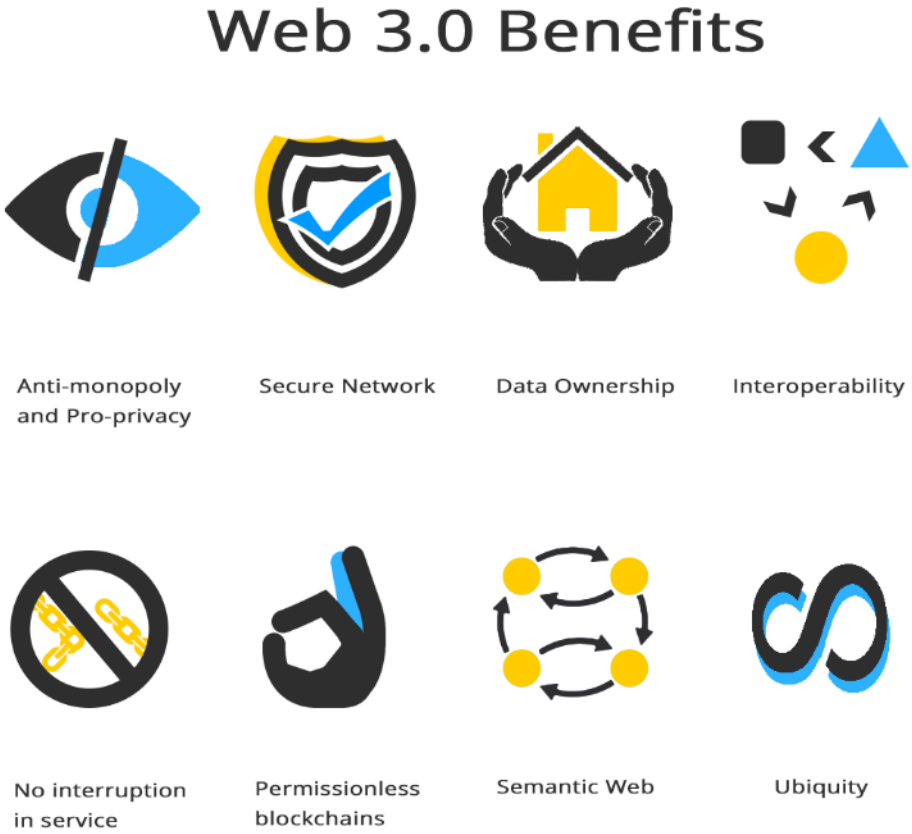
Web 3.0 is the 3rd generation of the internet where the devices are connected in a decentralized network rather depending on server-based databases.

The new internet is a user-centric, more secured, private and better connected.



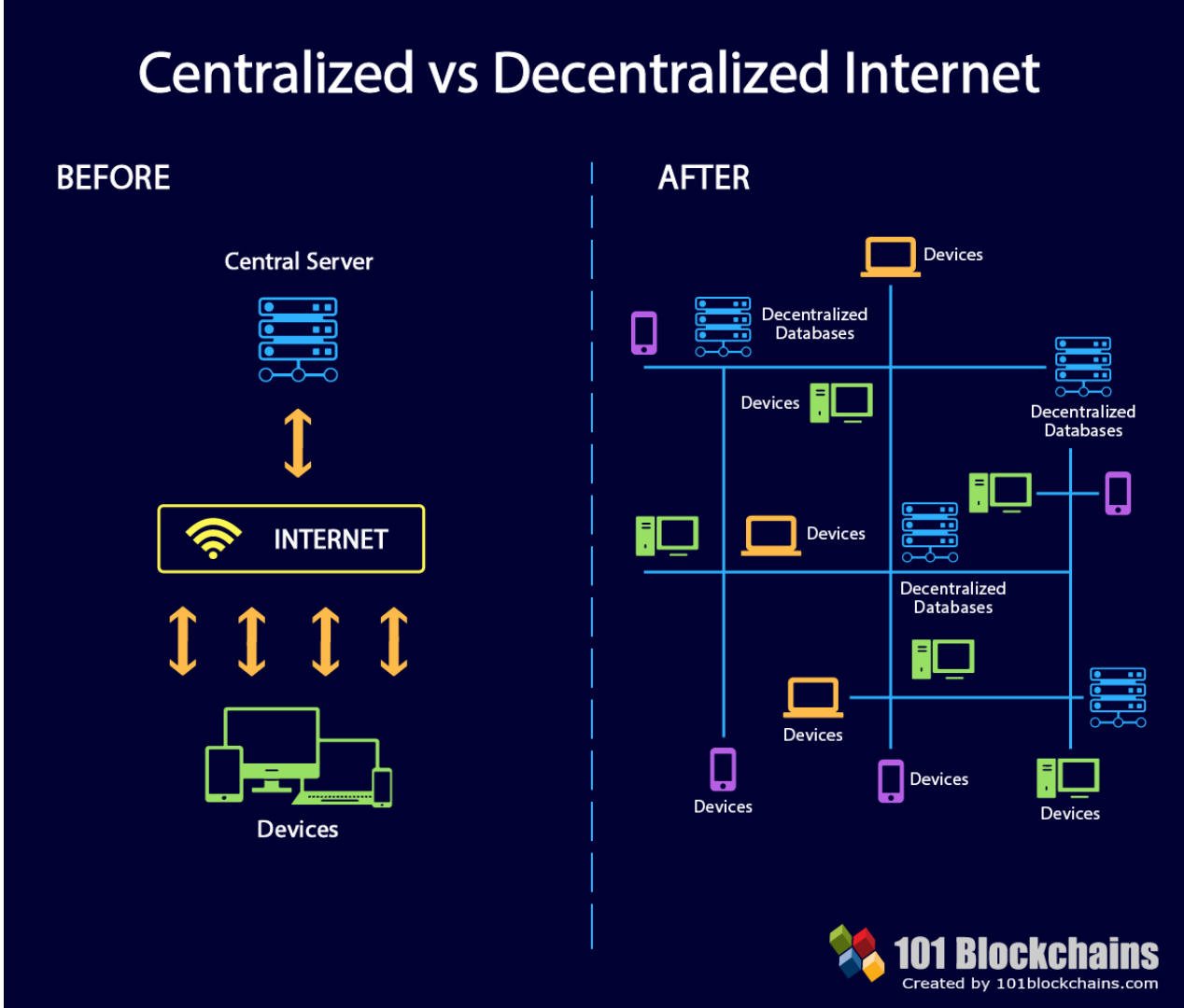
Web 3.0 Benefits

- Anti-monopoly
- Pro-privacy
- Secure network
- Data Ownership
- Interoperability
- No interruption in service
- Permissionless blockchains
- Semantic Web
- Ubiquity



Remember

- Decentralized Internet
- No central authority
- Data Flow
- New Business Models
- dApps



Web 3.0 Ecosystem

- Social Networks
- Exchange Services
- Messaging
- Storage Services
- Insurance and Banking
- Streaming Services
- Remote Jobs
- Browsers

Bonus #1

Blockchain vs Database

- Integrity
- Write Access
- Cost
- Trust

Is Database Enough? A comparison Between Blockchain and Database

No one has the central authority.	Selected groups of individuals have authoritative control.
Modifying data or asset is nearly impossible.	Data or assets can be easily changed.
All the data or activity is out in the open for everyone to see.	All the data or transactions are hidden from each other.
Cuts down the excessive costing.	Implementing process is costly.
Blockchains are slow.	Databases are comparatively faster.
Suited for an organization where users don't trust each other.	Suited for an organization where there is mutual trust.

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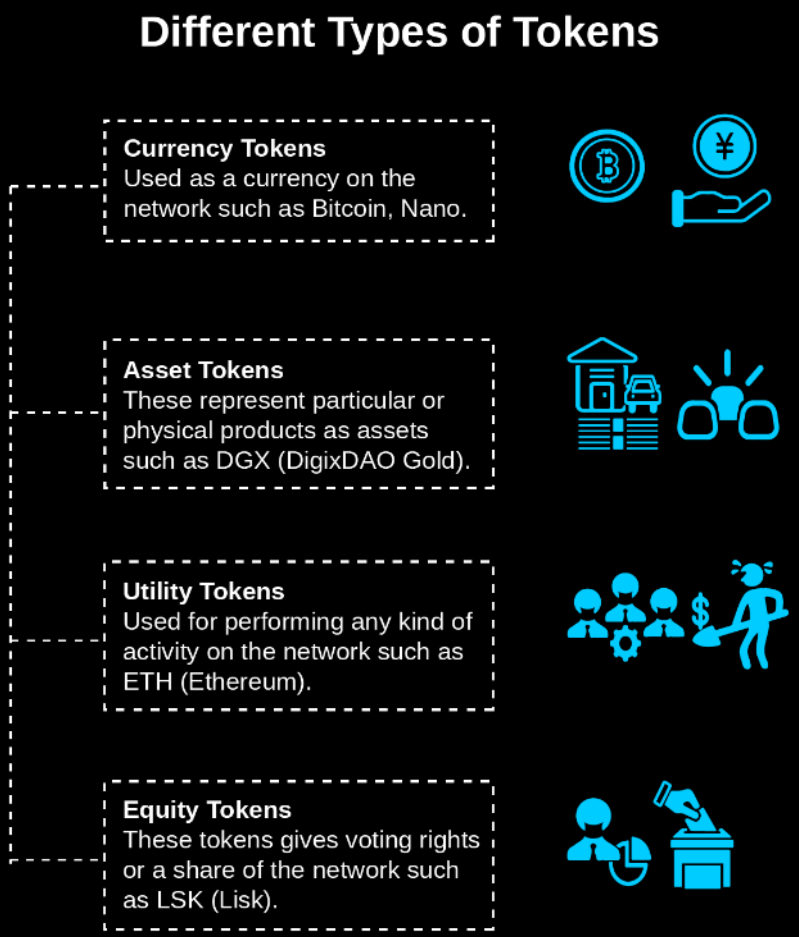
Bonus #2
Different Types of Tokens

- Currency Tokens
- Asset Tokens
- Utility Tokens
- Equity Tokens



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