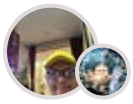
Demystifying Blockchain Transactions



Nova Novriansyah · Follow
Published in Novai-Blockchain 101
2 min read · May 1, 2024

Blockchain technology has revolutionized digital transactions, but understanding how these transactions work can be complex. Let's dive into the mechanics behind blockchain transactions to demystify this process.

What is a Blockchain Transaction?

At its core, a blockchain transaction involves transferring digital assets from one person to another. This process includes specifying the amount, destination, and authentication signature. You typically initiate these transactions through a crypto wallet interface.

Purpose of Blockchain Transactions:

1. Decentralized Peer-to-Peer Transfer: Blockchain enables direct, peer-to-peer transfers without the need for intermediaries. Each transaction is processed and verified by multiple computers, or nodes, in the network, ensuring transparency and security.

2. Authentication and Verification: Blockchain transactions also serve to prove ownership of funds or assets. Whether for financial transactions or validating ownership of certificates, blockchain offers a tamper-proof method of authentication.

Ensuring Security in Blockchain Transactions:

Blockchain transactions maintain security through Public Key Cryptography. This involves using pairs of public and private keys to verify and sign transactions. While the private key controls the account and signs transactions, the public key allows others to verify the transaction's authenticity.

The Transaction Process:

1. **Creating a Transaction:** You begin by proposing a transaction in your crypto wallet, specifying details such as sender and recipient addresses and the transfer amount.
2. **Signing the Transaction:** Once you approve the transaction, you sign it with your private key to authenticate it.
3. **Distribution to Nodes:** The signed transaction is then distributed to various nodes in the network and enters a waiting area called the mempool.
4. **Verification in the Mempool:** Nodes verify the transaction's validity by checking your public key and signature. If valid, the transaction moves to the next phase.
5. **Block Creation:** Special nodes, such as miners or validators, propose new blocks containing verified transactions.
6. **Consensus:** The network reaches consensus on whether to add the proposed block to the blockchain. If agreed upon, the transaction becomes final, and the block creator receives a reward.

Resolving Discrepancies:

To maintain consistency across all nodes, validated blocks must be received in the same order. Each block's hash relies on previous and subsequent blocks, ensuring immutability. In case of discrepancies, the longest valid chain of transactions is considered the true copy, as per the network's consensus mechanism.

Understanding Blockchain Transactions: The Bus Station Analogy

Imagine blockchain transactions as passengers waiting at a bus station. Each block represents a bus, and transactions are passengers waiting to board. Just like ticket officers verify passengers, consensus mechanisms verify transactions. Block creators act as bus drivers, prioritizing transactions based on fees.

Conclusion:

Blockchain transactions are the backbone of decentralized finance, governance, and digital innovations. They offer more than just financial transfers, providing a secure means of authentication and validation. By understanding the mechanics behind blockchain transactions, we unlock the potential for a decentralized and transparent future.

Web3 Blockchain

Follow

Published in Novai-Blockchain 101

1 Follower · Last published Jun 2, 2024

Welcome to our blockchain channel, where we unravel the mysteries of decentralized technology. Delve into the concepts of public and private blockchains, exploring their unique features, applications, and potential impact on various industries. Whether you're a blockchain novice

Follow

Written by Nova Novriansyah

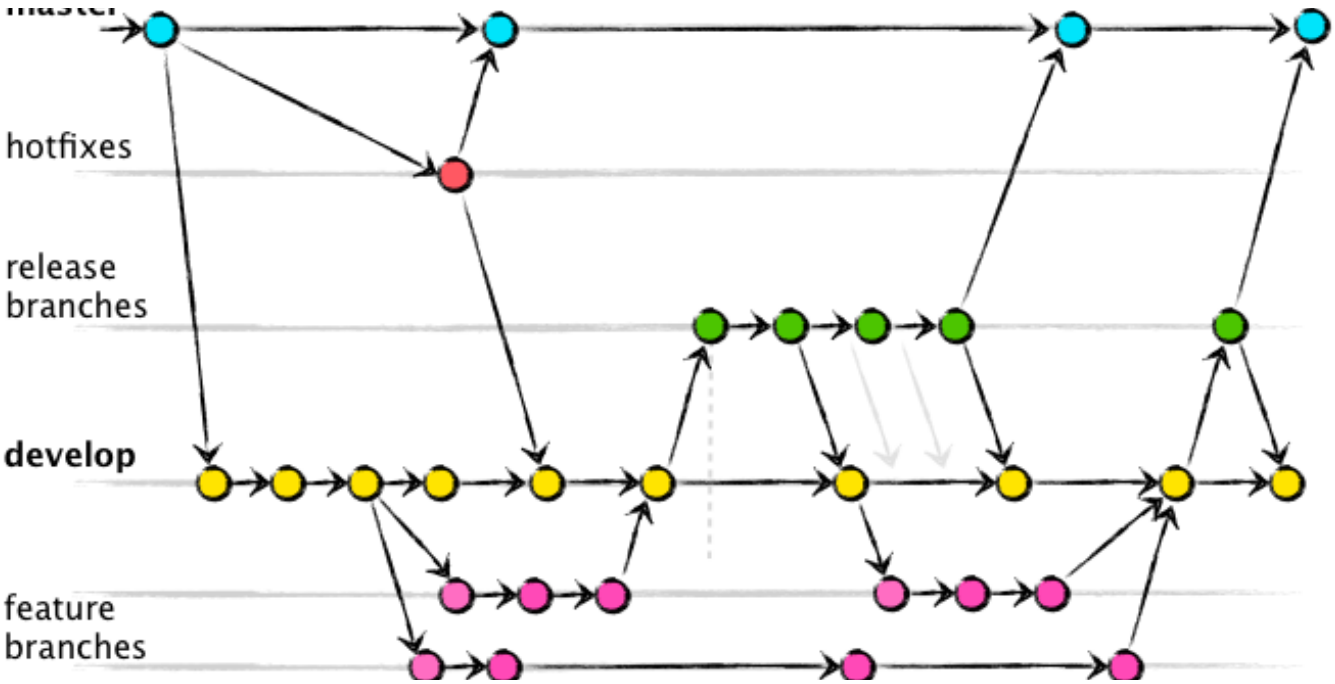
109 Followers · 34 Following

C|CISO, CEH, CC, CVA,CertBlockchainPractitioner, Google Machine Learning , Tensorflow, Unity Cert, Arduino Cert, AWS Arch Cert. CTO, IT leaders. Platform owners

No responses yet

What are your thoughts? Respond

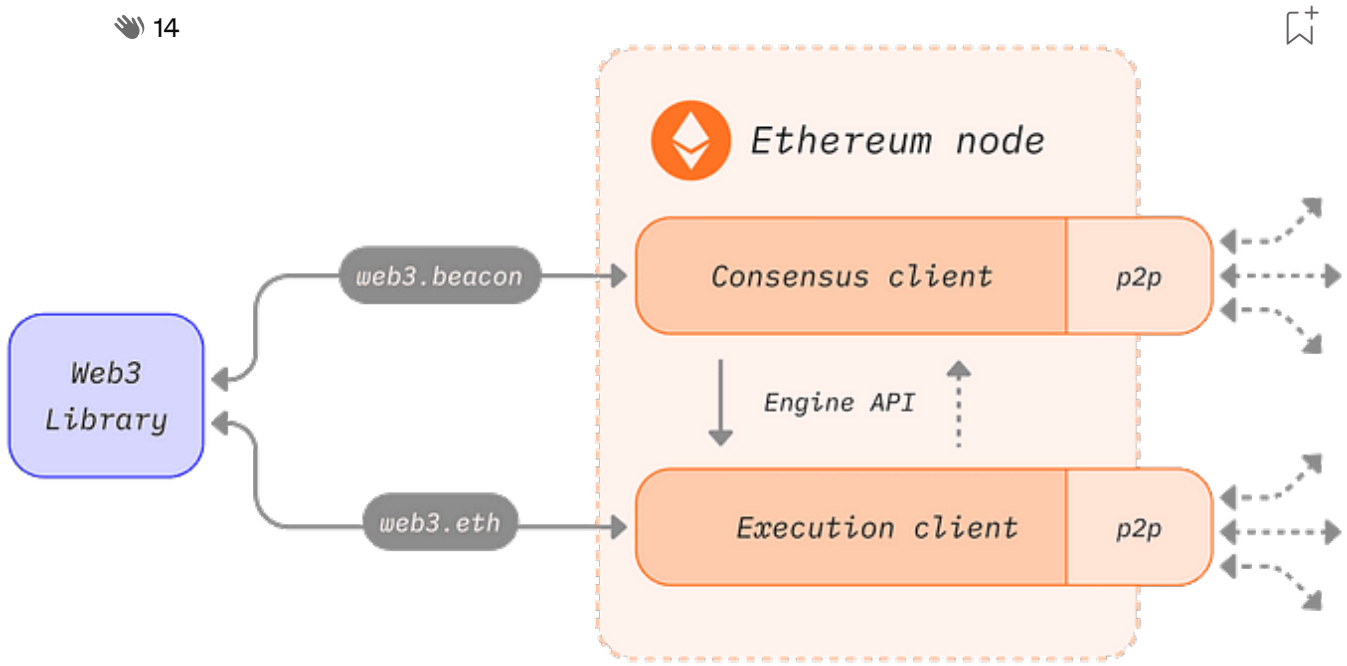
More from Nova Novriansyah and Novai-Blockchain 101



In NovAI- Agile & DevOPS 101 by Nova Novriansyah

Top 4 Branching Strategies and Their Comparison: A Guide with Recommendations

Branching strategies are critical in version control, helping teams manage and organize code changes efficiently. Choosing the right...

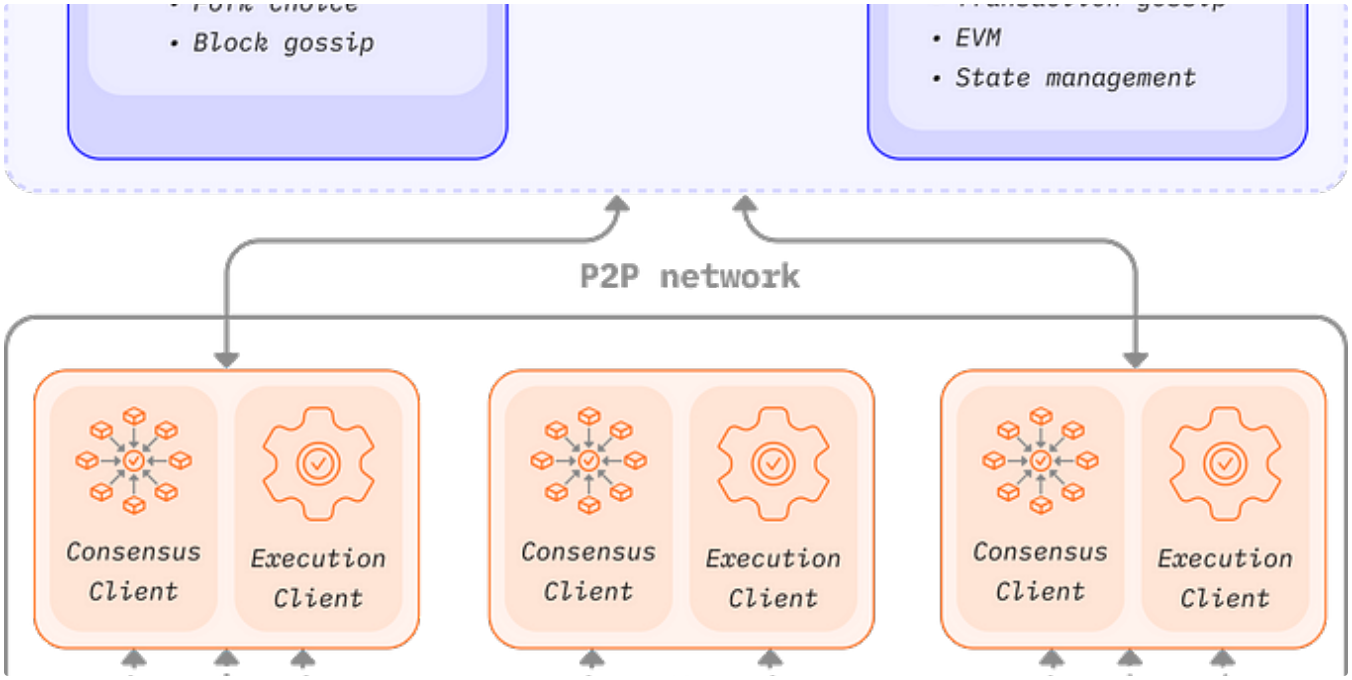


In Novai-Blockchain 101 by Nova Novriansyah

Understanding Nodes and Clients in Ethereum

In the realm of Ethereum, nodes and clients play crucial roles in maintaining the network's integrity and facilitating transactions. Let's...

May 7 2



In Novai-Blockchain 101 by Nova Novriansyah

Understanding Ethereum Node Architecture

Ethereum, the groundbreaking blockchain platform, operates through a complex network of nodes. These nodes play crucial roles in executing...

May 7 2

In NovAI Cloud Computing — GCP by Nova Novriansyah

How to Install Google Cloud CLI (Command-Line Interface) on Mac, Windows, and Linux

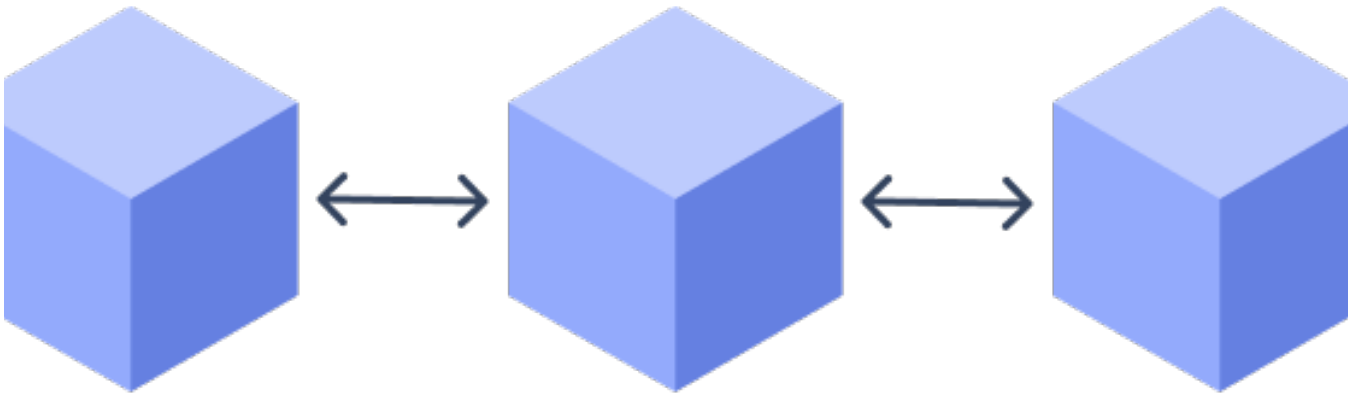
Google Cloud CLI, known as gcloud, is an essential tool for managing Google Cloud Platform (GCP) resources from the command line...

Jun 21 1 1

See all from Nova Novriansyah

See all from Novai-Blockchain 101

Recommended from Medium



Blockchain

Sithara Wanigasooriya

Blockchain in 2024: An Expert's Guide to its Core Components and Evolution

Blockchain is now recognized as a decentralized, secure, and transparent way to store and manage data across a network of computers without...

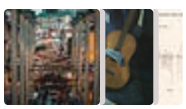
AK

Web3 and Blockchain Development in 2024: A Comprehensive Engineering Guide

After leading blockchain development teams at major financial institutions and implementing numerous Web3 solutions, I've learned that...

Nov 25 10

Lists



My Kind Of Medium (All-Time Faves)

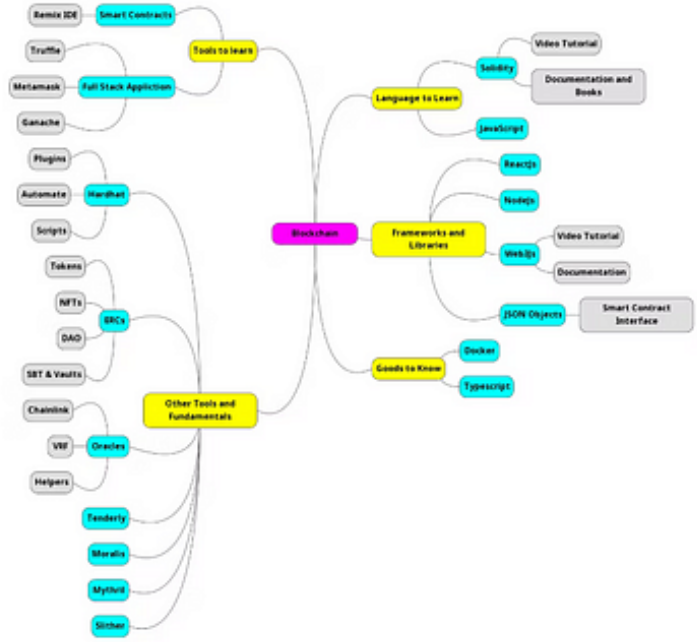
102 stories · 598 saves

MODERN MARKETING

199 stories · 948 saves

Generative AI Recommended Reading

52 stories · 1532 saves



Sandhuya Sharma

Blockchain and its uses

Understanding Blockchain: The Backbone of Decentralization

Sep 1

Prashanth Noble Bose

Ultimate Guide to Selecting the Top Cryptocurrency Wallet for Safe Transactions

Ultimate Guide to Selecting the Top Cryptocurrency Wallet for Safe Transactions

1d ago

Tushar Bhatia

Exploring Solana's Consensus- What Makes Proof of Stake and Proof of History So Fast?

If you're curious about what makes Solana stand out in the blockchain world, you're not alone. Honestly, when I first dug into it, I was...

Nov 1 50

Naila Rani

From Bitcoin to Smart Contracts: How Blockchain Will Transform Your Life!

What is Blockchain? An In-Depth Guide

Nov 17 112 12

See more recommendations