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METAVERSE, WEB3 & DECENTRALIZED SOCIAL MEDIA PLATFORMS.

VIRTUAL COIN (VRCN)

WHITEPAPER

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VRCN BLOCKCHAIN

CONTENT

ABSTRACT

This paper proposes a new blockchain architecture based on Proof of Work (PoW). Present-day blockchain architectures all suffer from a number of issues not least practical means of extensibility and scalability. We believe this stems from tying two very important parts of the consensus architecture, namely canonicality and validity, too closely together. **Virtual Coin (VRCN)** is an open-source public blockchain platform that supports smart contracts. **Virtual Coin (VRCN)** is compatible with Ethereum which means that you can migrate smart contracts on Ethereum to **Virtual Coin (VRCN)** directly or with minor modifications.

While **Virtual Coin (VRCN)** features a complete development environment for solidity developers, Metaverse, Defi, Web3 payments, & the focus in the gaming industry.

These rules, referred to as a consensus mechanism, are determined at the inception of the blockchain. By integrating a consensus mechanism, blockchains offer a solution for entities who aren't sure of each other's trustworthiness to agree on a transaction's inclusion in the blockchain.

This tackles the Byzantine Generals Problem. Blockchains use varying consensus mechanisms depending on their transaction type, including "**proof of work**", "**proof of stake**", and "**proof of space**". These mechanisms ensure the authenticity and immutability of transaction records.

INTRODUCTION & OVERVIEW

Satoshi Nakamoto's development of Bitcoin in **2009** has often been hailed as a radical development in money and currency, being the first example of a digital asset which simultaneously has no backing and no centralized issuer or controller. The cryptocurrency market was evaluated at around ($1) Trillion for 2021.

Every day we interact with technologies controlled by a handful of large companies whose interests and incentives often conflict with our own.

If we want the benefits of using their proprietary apps, we're forced to agree to terms that most of us will never read, granting these companies complete control over the data we generate through each interaction with their tools.

Because that data can often paint a detailed picture of our personal lives, it's become a resource more valuable than oil. And we're giving it up for free with no choice but to trust that it won't be lost, stolen or misused.

At the same time, progress in open-source and decentralized technologies like blockchain has shown that we can build systems that prioritize individual sovereignty over centralized control. With these new systems, there's no need to trust any third parties not to be evil.

But blockchain technology, in its current form, isn't ready to break the corporate stranglehold on the web just yet. Despite the promise and the progress made, we have yet to see significant real-world deployment of the technology.

BLOCKCHAIN

What is Blockchain

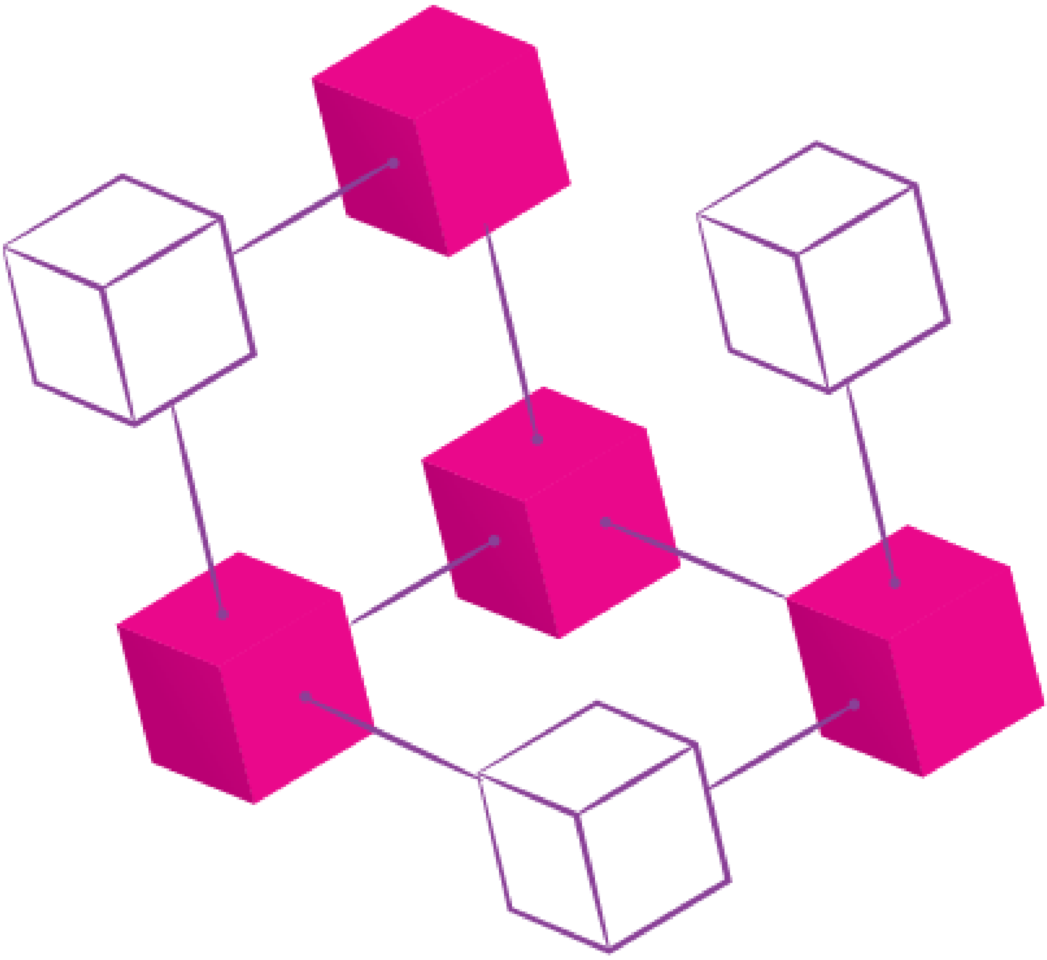
Block: A block acts as a unique ledger unit that records a batch of transactions occurring within a specified timeframe. This can capture any kind of activity, ranging from the documentation of a property sale to the record of a single product purchase. The operational guidelines for each block are defined when the network is initially set up, including restrictions on the maximum transaction capacity or size of a block.

Chain: Upon reaching its maximum capacity, the block is connected to the preceding block via a crypto-graphic link, known as a hash. This hash value of the previous block is embedded within the new block, forging a connection between the two. The hash function on an unchanged data block always generates a consistent, fixed-length output. If the block's data changes, it results in a different hash value. This allows users to identify discrepancies in hashes and recognize any tampering with the original block.

Network: The blockchain network is a distributed system comprising nodes, each maintaining a comprehensive record of all blockchain transactions. There's no centralized authority or "trusted" node in the network. Rather, the blockchain integrity is preserved through its replication across all nodes.

Nodes can be thought of as a group of servers operating a blockchain. Node operators are rewarded for their contribution, for instance, in cryptocurrency networks, nodes compete to solve complex computational problems. The node that first solves the problem gets its solution validated by other nodes. Upon verification, the solving node can add the next block to the chain and is compensated with cryptocurrency.

This operation is termed 'mining', and the computational resources involved are known as 'miners'. Operating modes are challenging, often spread worldwide, and sustain the infrastructure of cryptocurrencies. Each blockchain operates under its unique set of rules or algorithms that dictate how nodes verify transactions intended for the blockchain.



PROOF OF WORK (POW)

Proof of Work (PoW) is a consensus mechanism used in some blockchain networks for validation Perform transactions and create new blocks. This process is designed to stop cyberattacks Distributed Denial of Service (DDoS), designed to drain system resources. It was the first The consensus mechanism used in the blockchain, introduced by Bitcoin. The term "**Proof of Work**" refers to the challenge that miners (network nodes) have to solve to suggest the next block in the blockchain. The challenge is a complex mathematical problem, which requires significant computational resources

PROOF OF STAKE (POS)

Proof of Stake (POS) is a consensus algorithm used in certain blockchain networks as an alternative to the more energy-intensive Proof of Work **(PoW)** mechanism.
The fundamental goal is the same to validate transactions and achieve agreement (or consensus) across the network but the process is quite different. In a POS system, instead of miners competing to solve complex mathematical problems as in POW, validators are selected to create new blocks primarily based totally on their "stake" within side the network.

The "**stake**" refers to the amount of cryptocurrency a participant holds and is willing to "lock up" or temporarily commit for the chance to validate transactions and create new blocks.

The more cryptocurrency a participant stake, and the longer they are willing to leave it locked up, the higher the chance they will be selected as a validator. When chosen, they verify the However, it additionally has its challenges.

One of the primary concerns with **POS** is the "**Nothing at Stake**" problem, where there's no disincentive for a validator to validate on multiple blockchain forks because they have nothing to lose by doing so. This could potentially result in double spending.

Various iterations of **PoS** have been proposed to deal with these challenges, such as Ethereum upcoming move to Ethereum 2.0, which implements a version of PoS known as Casper

PROOF VALIDATION
(NODES VALIDATIONS)

While "**Proof Validation**" or "**Node Validation**" isn't a consensus mechanism in the same vein as **Proof of Work** or **Proof of Stake**, it's an important concept in the operation of blockchain networks.

The term generally refers to the process where nodes in a blockchain network verify, and validate new transactions and blocks. In the context of a blockchain network, each participant or node maintains a copy of the entire blockchain. Whenever a new transaction is proposed, it needs to be validated before being added to the blockchain.

This validation process involves checking the transaction against the existing blockchain to ensure it doesn't conflict with previously recorded transactions. For example, in the case of a cryptocurrency like Bitcoin, this validation process would prevent someone from spending coins they don't own or duplicating transactions (a double-spend).

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The specific process of validation can depend on the consensus mechanism employed by the blockchain:

1. In a **Proof of Work (PoW)** system, nodes (called miners) compete to solve a complex mathematical problem. The first one to solve it gets the right to validate the transactions, create a new block, and add it to the blockchain.

2. In a **Proof of Stake (PoS)** system, validators are chosen to validate transactions and create New blocks primarily based totally on their stake, i.e. the number of tokens they hold and are willing to "**lock up**" or commit for this purpose.

Once transactions are validated and added to a new block, and the block is added to the blockchain, other nodes in the network update their copies of the blockchain, maintaining the decentralized and synchronized nature of the network.

By distributing the task of validation across many nodes, blockchain networks increase their security and resilience against fraudulent transactions and other forms of attack. It's a crucial part of what makes blockchain technology robust and secure.

ETHEREUM VIRTUAL MACHINE (EVM)

EVM stands for **Ethereum Virtual Machine**. It is an essential part of the Ethereum ecosystem, as the runtime environment executes smart contracts on the Ethereum network. The **EVM** is completely isolated from the main Ethereum network, which makes it a perfect sandbox tool for testing smart contracts. The **EVM** is Turing complete, meaning it can execute any algorithm given enough resources.

Any programming language that compiles to **EVM** bytecode can be used to write smart contracts on the Ethereum network. Solidity is the most popular of these, though others like Viper are also used. In terms of operation, every node on the Ethereum network runs its own EVM implementation and executes the same instructions.

When a smart contract is executed, every node in the network must process it and come to the same result, ensuring consensus across the network. This is the process that uses gas, a measure of computational work in the Ethereum network.

The **EVM** also handles internal state changes and allows users to create and interact with smart contracts on the Ethereum blockchain. All transactions and states are stored on the blockchain, providing transparency and security. However, it's important to note that the EVM doesn't have access to real-world information, so developers often use oracles to provide this data for smart contracts.

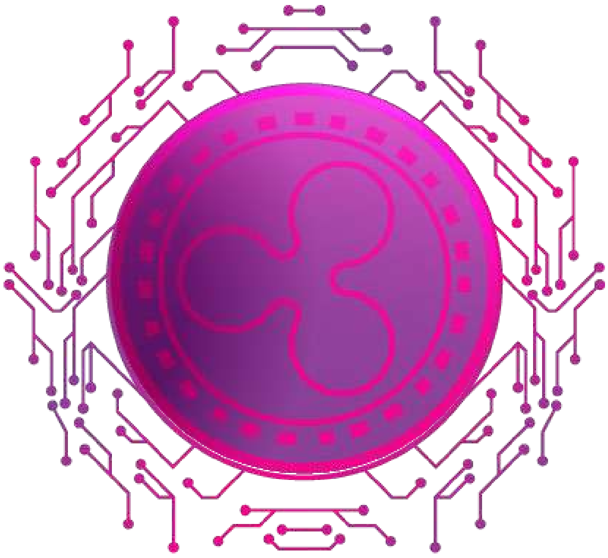
BLOCKCHAIN PLATFORMS

Blockchain is a flexible technology composed of various foundational elements that can be assembled in diverse ways. This adaptability allows for blockchain to be tailored to various applications.
Here's a brief review of four distinct blockchain platforms that embody different approaches:

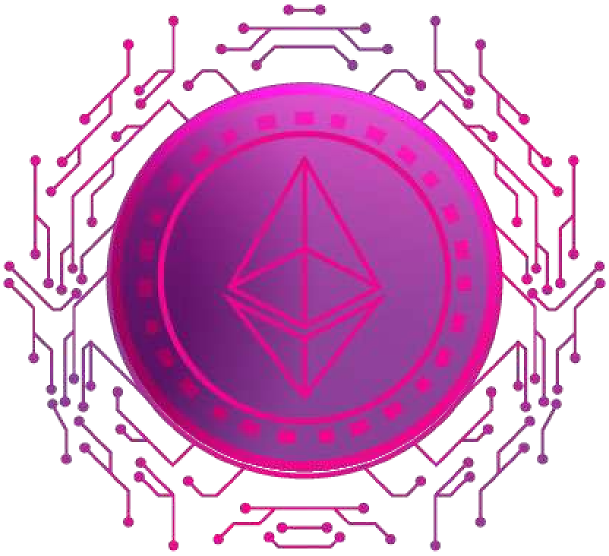
Bitcoin: Known for its eponymous cryptocurrency, Bitcoin operates on an open-source platform. Its blockchain design is intended primarily to facilitate cryptocurrency transactions without a third-celebration mediator. Besides facilitating monetary transfers, Ripple also supports exchanges of commodities, properties, and other valuable items.

Bitcoin operates on a zero-trust model among participants and relies on a multitude of decentralized nodes to protect the blockchain from potential corruption by bad actors.

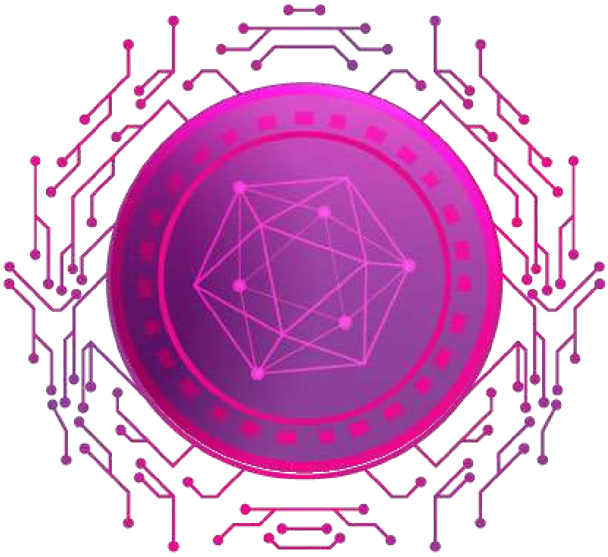
Ripple: Similar to Bitcoin, Ripple employs an open-source protocol with block-chain technology for value transfers. It has a robust user base comprising regional and global banks that require on the spot global transactions. Supports exchanges of commodities, properties, and other valuable items.



Ethereum: Launched in July 2015, Ethereum distinguishes itself by focusing beyond just cryptocurrency trades. Its primary aim is to offer a fully operational programming language that enables users to build comprehensive applications integrated with a blockchain. As an open source, crowd-funded platform, Ethe-reum allows users to create executable smart contracts and decentralized packages on its blockchain.



Hyper ledger: This project concentrates on cultivating an open-source, collaborative approach to distributed ledgers. By developing standards and a structural framework for blockchain, hyper ledger has attracted the support of renowned organizations like Cisco, American Express, and IBM. Some institutions focusing on library and information sciences have also integrated hyper ledger into their curriculum. Notably, hyper ledger has explicitly declared that it will not develop a cryptocurrency

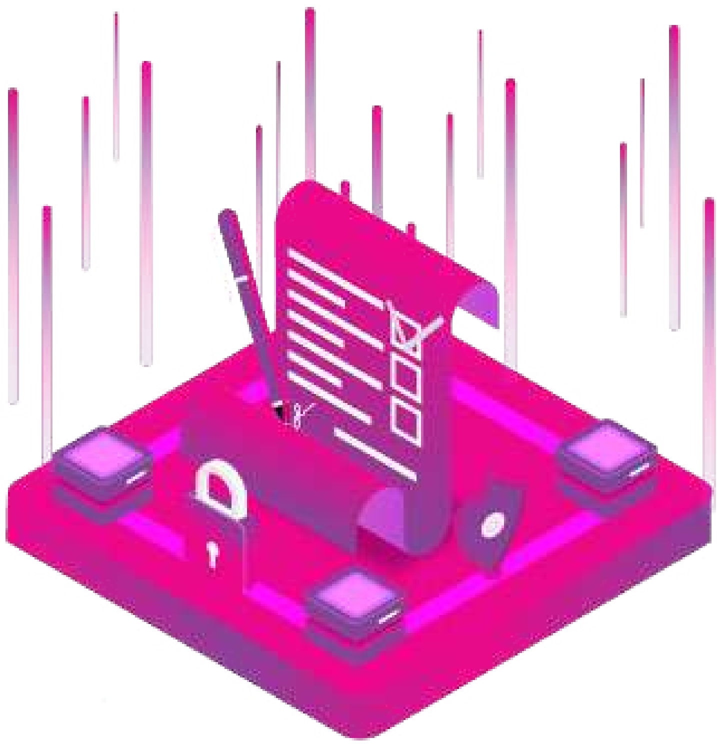


SMART CONTRACTS IN **BLOCKCHAIN**

A **smart contract** represents a digitally enforced agreement that operates on a blockchain platform. In essence, it's miles a settlement converted into code, saved on the blockchain, and robotically induced through positive events.

Simplistically, a **smart contract** can be seen as a series of "if/then" conditions programmed and preserved on the blockchain.

Upon satisfying the conditions defined in the smart contract, it self-executes, and the subsequent activity is recorded and dispersed across the blockchain. Consider an artist selling a digital track on an online platform at a predefined rate. Such an agreement can be coded into a smart contract, on Ethereum. Once a fan makes a purchase, the smart contract autonomously remits the payment to the artist and logs the transaction on the blockchain.



Throughout the evolution of blockchain systems, developers could script smart contracts that render transaction data or records cryptographically obscured, meaning that although the records are not erased from the blockchain, they become cryptographically shielded, making them invisible to the overall public. It remains uncertain if cryptographically hidden data can be considered permanently inaccessible and therefore deemed "erased" from the complete record. From a records management viewpoint, the existence of such features as crypto graphically hidden data suggests that records retention and disposition might not have been a primary consideration in the original blockchain design. However, smart contracts could potentially address issues such as record access, retention, disposition, and litigation holds, depending on how the rules, roles, and features of the blockchain are configured and developed.

HIGH-PERFORMANCE SMART CONTRACTS

High-Performance Smart Contracts refer to smart contracts that are designed to optimize transaction speed, scalability, and overall performance. These smart contracts are built to process large volumes of transactions quickly, efficiently, and reliably.

A **high-performance smart contract** can be crucial for applications that require fast and high- volume transactions. These include financial services applications like decentralized exchanges, payment networks, or any applications that require real-time response. Several factors contribute to the performance of smart contracts:

Concurrency: High-Performance Smart Contracts should be able to manage multiple transactions simultaneously. This is achieved through concurrent execution where different transactions are processed at the same time

Scalability: Scalability refers to the ability to manage increased workloads by adding resources. In the context of smart contracts, this means being able to handle a higher number of transactions as the network grows.

Efficient Code: The efficiency of the smart contract's code also affects its performance. Efficient code executes faster and uses less computational resources, thereby improving the smart contract's performance.

State Channels/Off-chain computations: These techniques can be used to move some computations off the blockchain, thereby reducing the load on the blockchain network and improving performance.

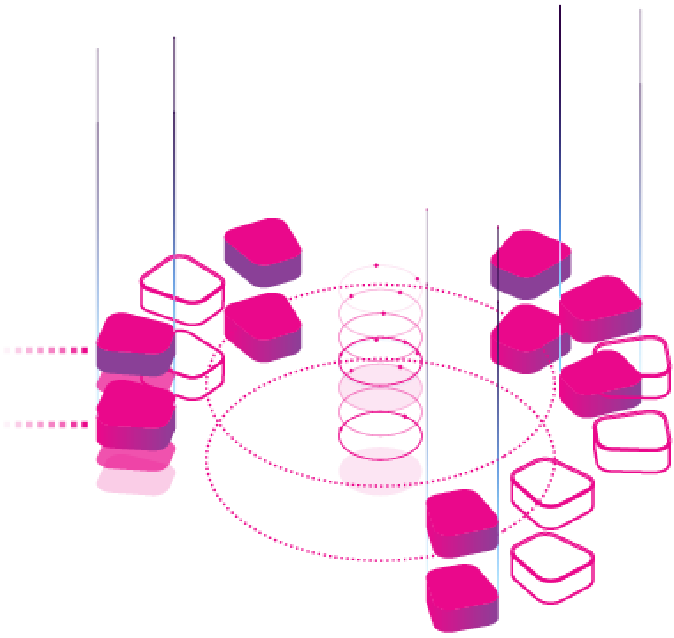
Blockchain platforms that are specifically designed for high-performance applications, such as Solana or EOS, provide an environment that allows for the creation of High-Performance Smart Contracts.

They do this by utilizing various strategies like sharing, consensus algorithms designed for speed and throughput, and other architectural decisions aimed at high performance.

BLOCKCHAIN FOR DATA MANAGEMENT

The concept of '**archived information**' isn't confined to conventional records. It spans all formats and features, including data generated, manipulated, communicated, or saved in the digital sphere.

The cryptographically secure hash, block header, and intricate web of transactional data embedded within each block could very well be federal records if they have been crafted in the course of government business and are considered suitable for safekeeping.



Each block within the chain is a treasure chest, potentially filled with a myriad of record types, each stemming from a unique transaction. The core strength of blockchain technology lies in its decentralized nature that champions distributed data management.

This implies that all the records find their home on the blockchain network or platform, and are shared across all participating nodes, like sparkling constellations in the digital universe.

GLOBAL BLOCKCHAIN MARKET

Embarking on an astounding growth trajectory, the global blockchain market is poised to soar, reaching new heights and unlocking unprecedented opportunities. In 2021, the market was valued at an impressive **€5.10 ($6.0) billion**, with an awe inspiring CAGR of **56.9%** forecasted from **2021 to 2026**.

As the world embraces blockchain technology, the landscape of B2B cross border transactions is undergoing a paradigm shift. The horizon of possibilities broadens as blockchain emerges as the harbinger of a revolutionary transformation.

With great anticipation, experts predict a dramatic surge in B2B cross-border transactions conducted on blockchain, reshaping the future of global commerce. The forthcoming years herald a striking revelation - by 2025, the number of B2B cross-border transactions on the blockchain is expected to scale at unprecedented heights, reaching an astonishing 745 million.

This remarkable milestone epitomizes the trust and confidence the world bestows upon blockchain, as it becomes the go-to solution for secure, transparent, and efficient cross-border transactions.

In this dynamic and ever-evolving landscape, the global blockchain market paves the way for innovation, collaboration, and limitless possibilities. As enterprises, industries, and economies embrace this transformative technology, a world of boundless potential awaits.

Unleashing the power of blockchain, we embark on an exhilarating journey, shaping a future that thrives on security, efficiency, and borderless opportunities

WHY VRCN CHAIN?

In a world where the demand for efficient and scalable blockchain solutions is growing, **Virtual (VRCN) Chain** emerges as a project poised to meet these challenges head-on.

Through its commitment to innovation, security, and scalability, **Virtual (VRCN) Chain** aims to provide an advanced blockchain solution for the next generation of decentralized applications.

Virtual (VRCN) Chain stands out in the crowded landscape of blockchain projects for several notable reasons:

Efficient Consensus Mechanism: By utilizing a **Proof of Stake (PoS)** consensus algorithm, Virtual Coin (VRCN) Chain provides a more energy-efficient alternative to traditional Proof of Work (PoW) systems. This means the network can process transactions and secure the blockchain with a significantly lower energy cost.

1. Enhanced Security: The PoS mechanism discourages malicious activity. For a potential attacker to compromise the network, they would need to hold a majority of the tokens, which would be prohibitively expensive, thereby ensuring the security of the network.

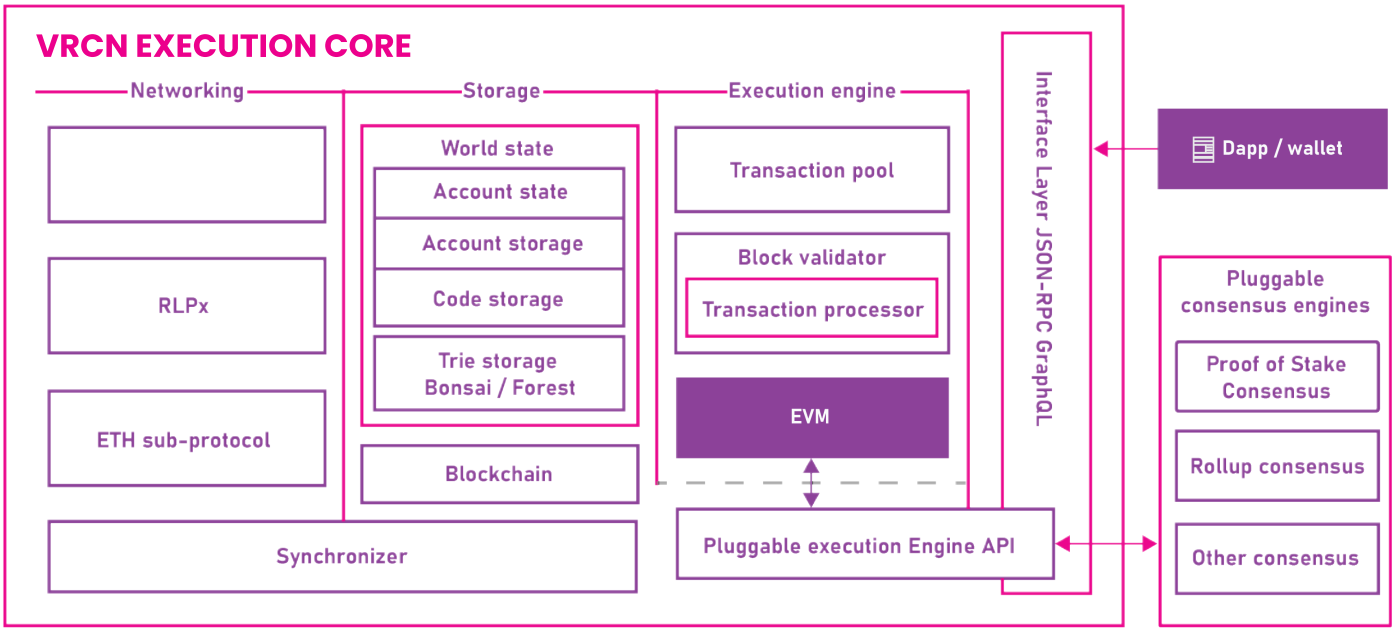
2. Scalability: **Virtual (VRCN) Chain** is designed with scalability in mind. The PoS consensus algorithm allows for faster transaction processing times and an increased transaction capacity compared to PoW- based networks. This means that as the network grows, **Virtual (VRCN) Chain** will be able to efficiently handle an increased demand.

3. Incentivized Participation: Virtua(VRCN) Chain encourages active network participation. Users who stake their tokens to become validators are rewarded for their service to the network, promoting a healthy and active blockchain ecosystem.

4. Broad Application Spectrum: Virtual (VRCN) Chain, thanks to its flexible infrastructure, can cater to a wide range of applications, from financial services to supply chain management, and more. This positions VIRTUAL COIN (VRCN) Chain as a versatile tool in the rapidly evolving landscape of decentralized technologies.

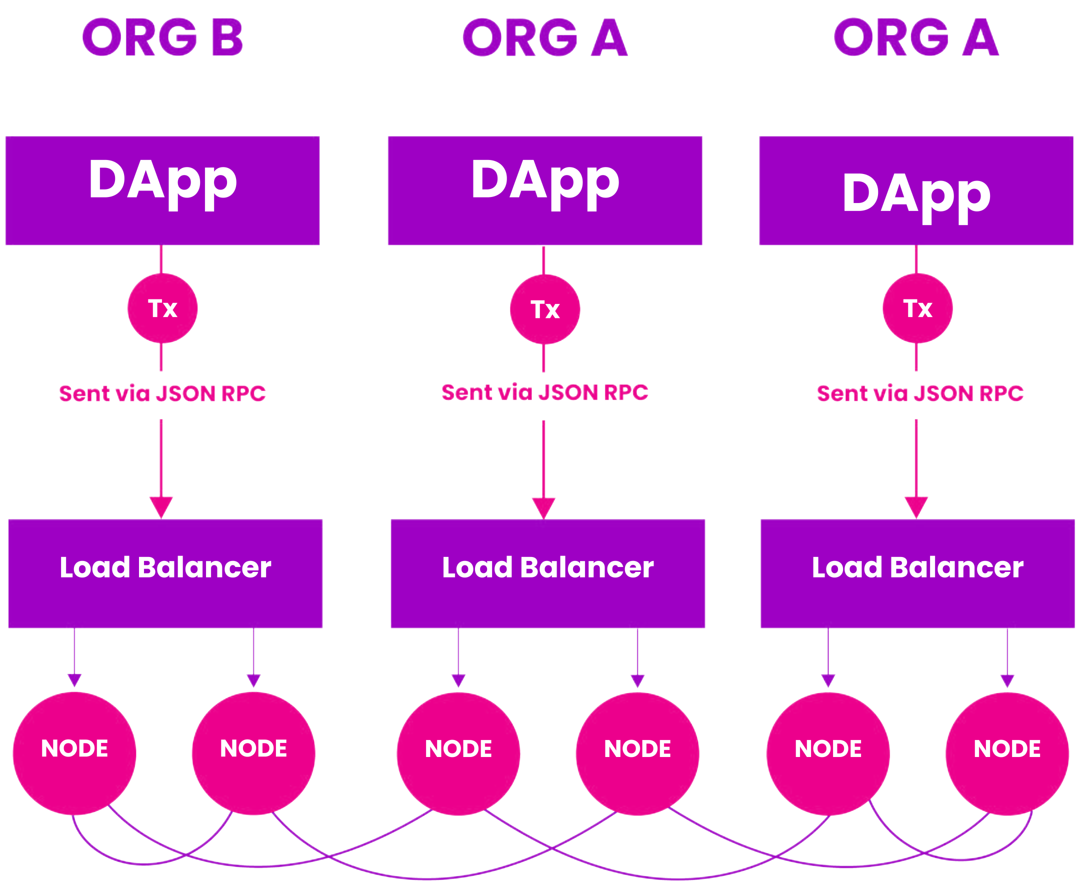
VIRTUAL COIN (VRCN) EXECUTION CORE

The following diagram outlines the high-level architecture of VRCN for public networks

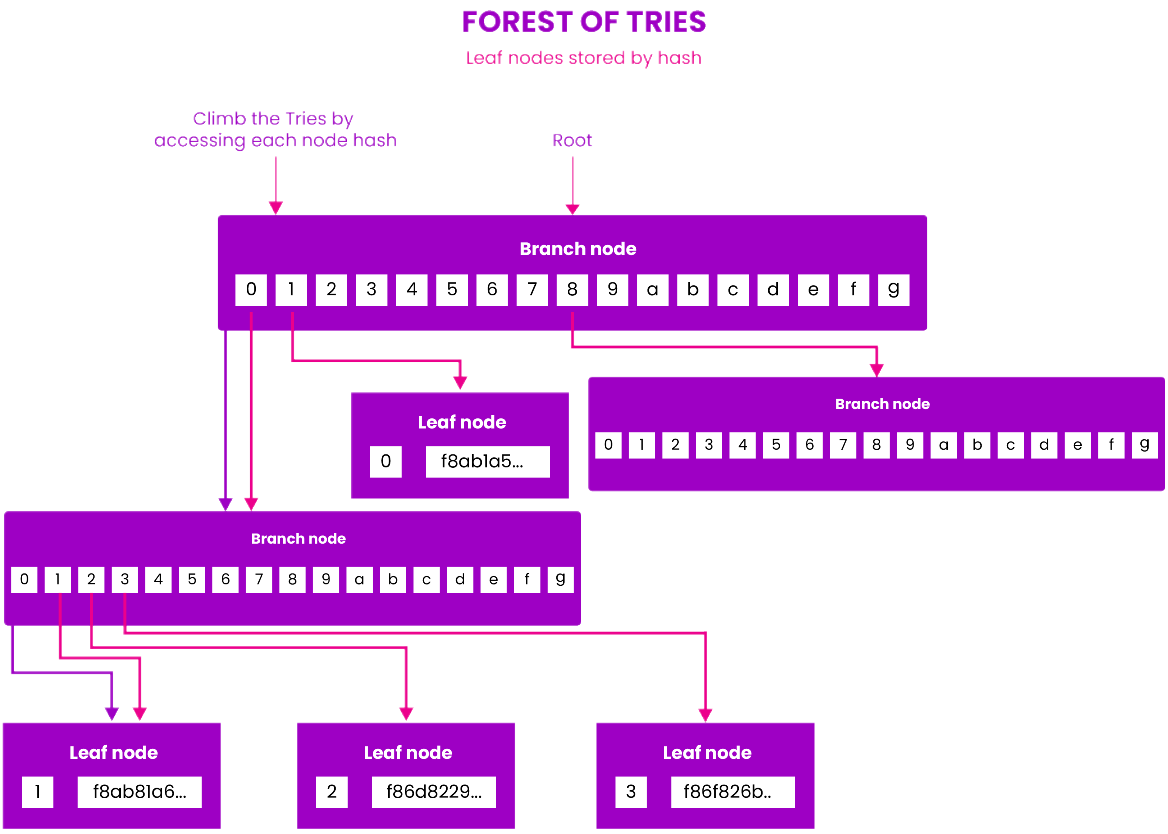


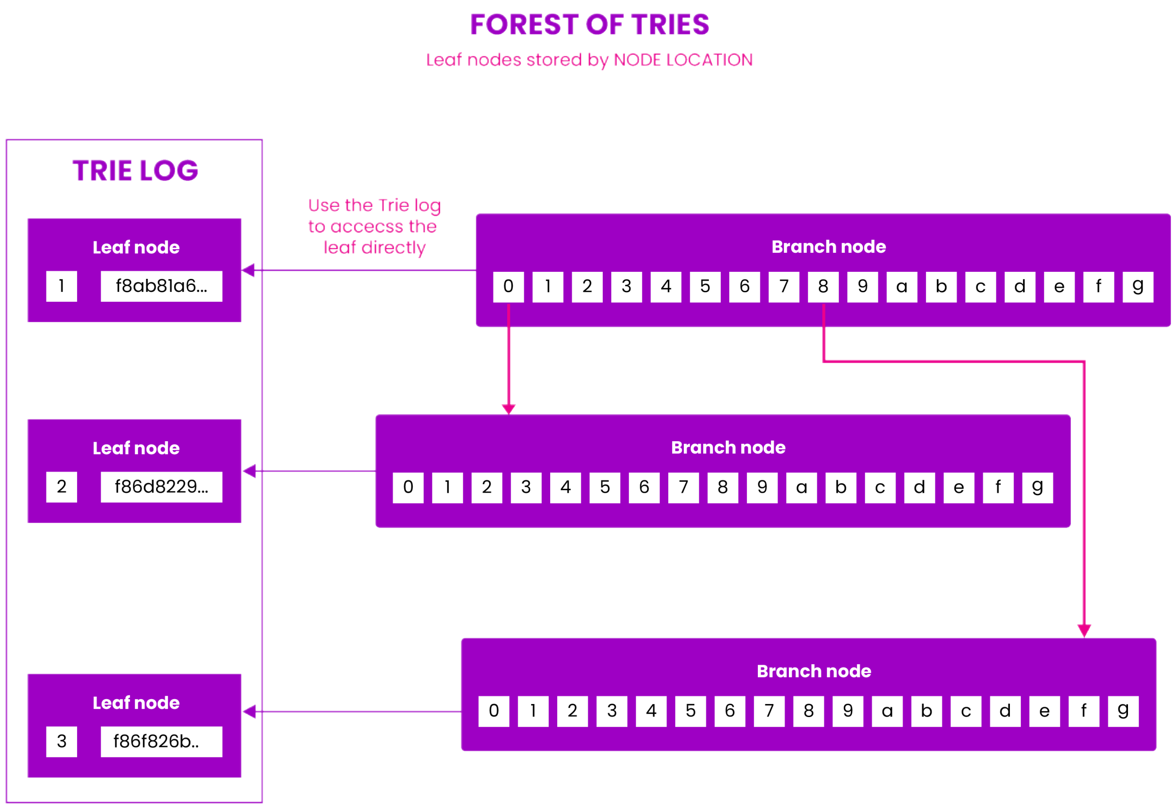
HIGH AVAILABILITY OF JSON-RPC AND RPC PUB/SUB APIS

To enable high availability to the RPC Pub/Sub API over WebSocket or the-JSON-RPC API, run and synchronize more than one VRCN node to the network. Use a load balancer to distribute requests across nodes in the cluster that are ready to receive requests.



FOREST OF TRIES





TX POOL VALIDATION