

hi Protocol Paper





hi Protocol

Scalability

Security

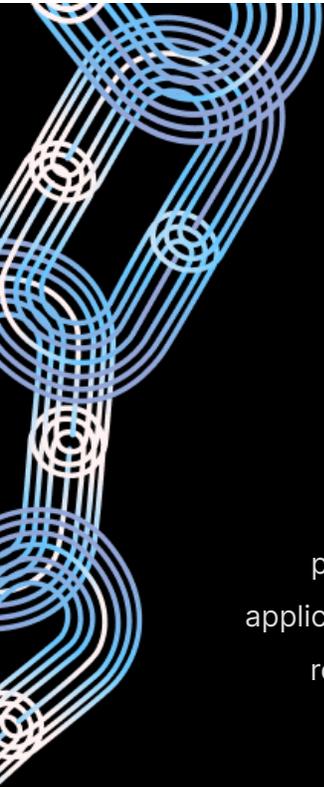
Speed

Adaptability

Raison d'Etre

We view the emergence of blockchain technology as a consequential moment in human history, where more efficient, transparent and inclusive internet, financial and identity services will enable a better society for everyone. As the **hi** ecosystem grows, it is anticipated that certain characteristics of the Ethereum blockchain network, such as low transaction throughput and high costs, will make it necessary for the platform to be migrated. We are building the hi Protocol (**hiP**), powered by hi Dollars, and designed from the ground up to enable payment transactions worldwide at negligible time and zero costs. **hiP** will be a high performance, smart contract enabled blockchain solution designed to prioritize scalability, security, speed, and future adaptability.



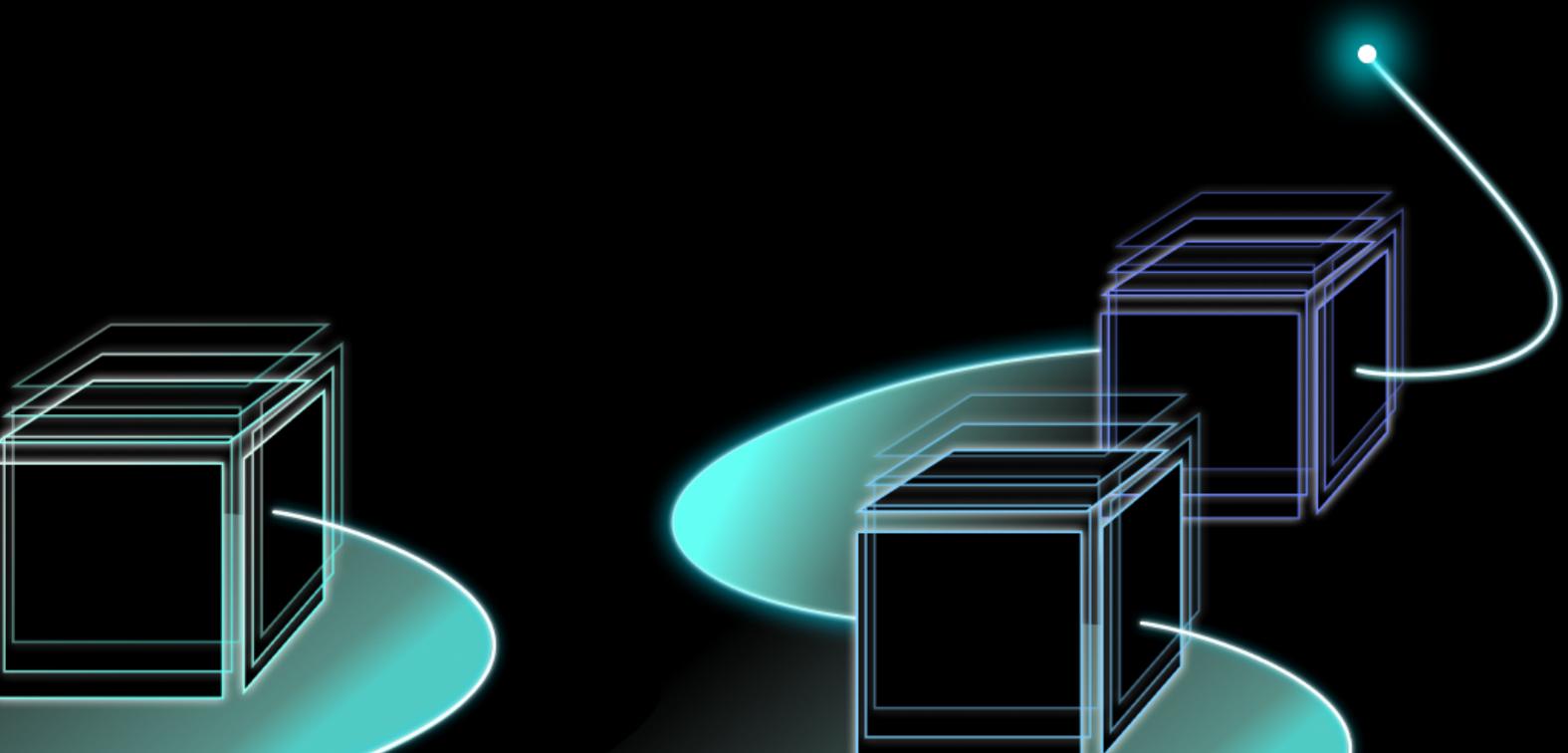


Key Features

Consensus:

hiP will initially be implemented as a permissioned blockchain based on the Delegated Proof of Stake (DPoS) consensus mechanism. It is a smart-contract platform that enables the development of industrial-scale decentralized financial applications. By staking hi Dollars, **hi** members may access the distributed computing resources provided by nodes, as well as vote for witness nodes to become block producers.

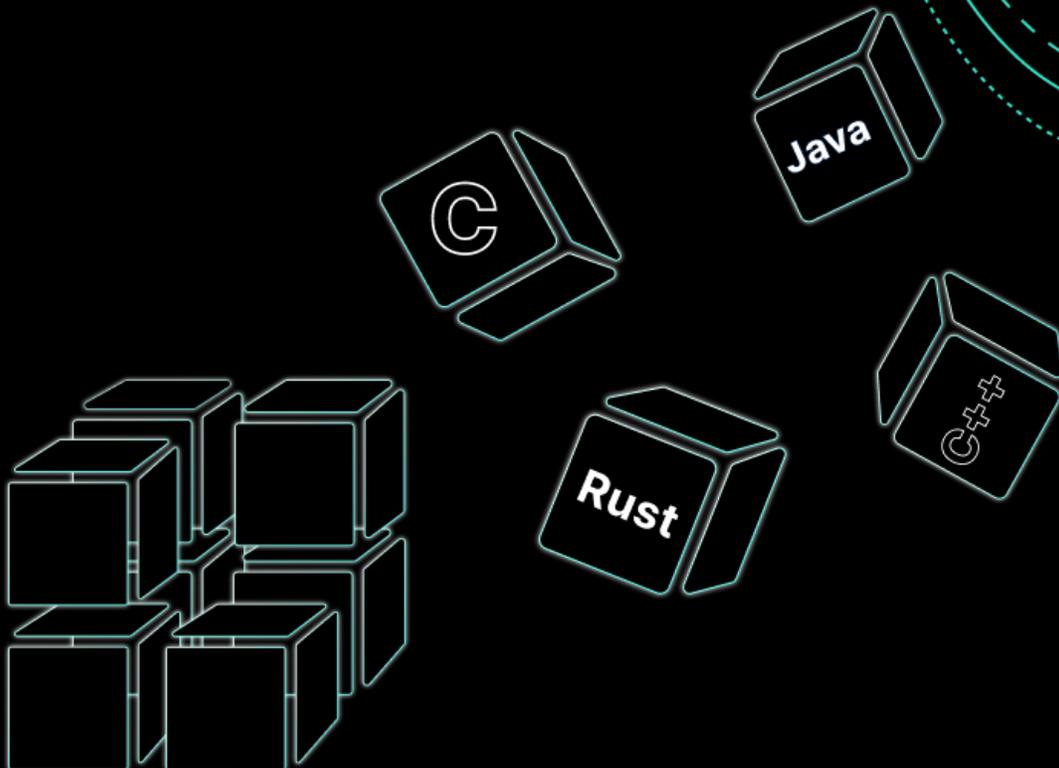
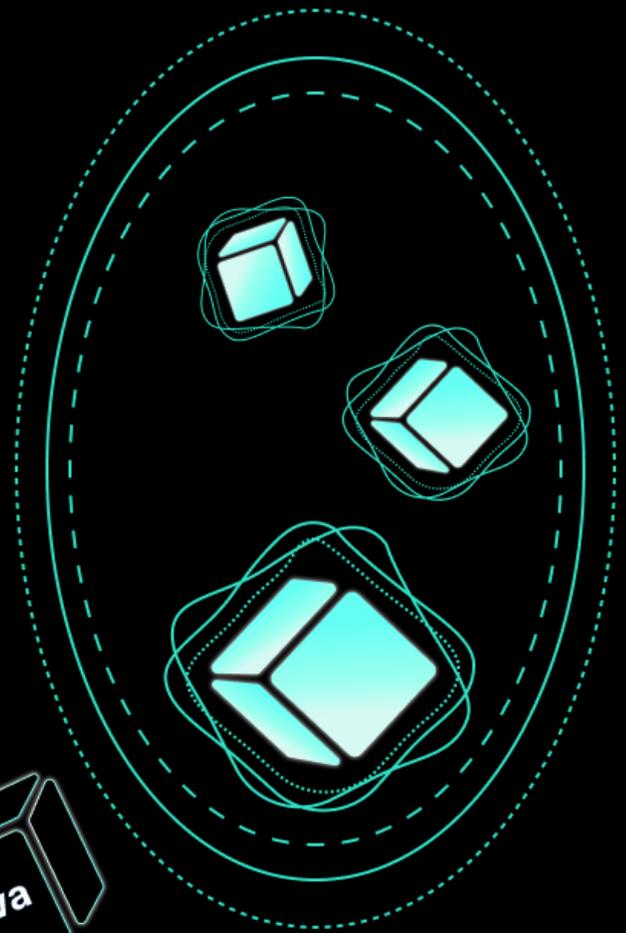
Initially, only members and nodes authorized by the hi Foundation may participate in the network. Overtime, authorized nodes will have the ability to authorize members and additional nodes, thereby transitioning **hiP** into a semi-permissioned blockchain. The need to authorize both nodes and voting members lies with our desire for **hiP** to not only become the fastest and most versatile blockchain, but also to facilitate the development of regulatory compliant decentralized finance (DeFI) applications.



WASM Virtual Machine:

Despite Ethereum's position as the most dominant smart contract platform, the Ethereum Virtual Machine (EVM), with its lackluster development tools and slow speed, has left much to be desired.

hiP will leverage an open standard WASM based virtual machine to provide our community with a wider support of programming languages (C, C++, Java, Rust, etc.), and near native execution speed.



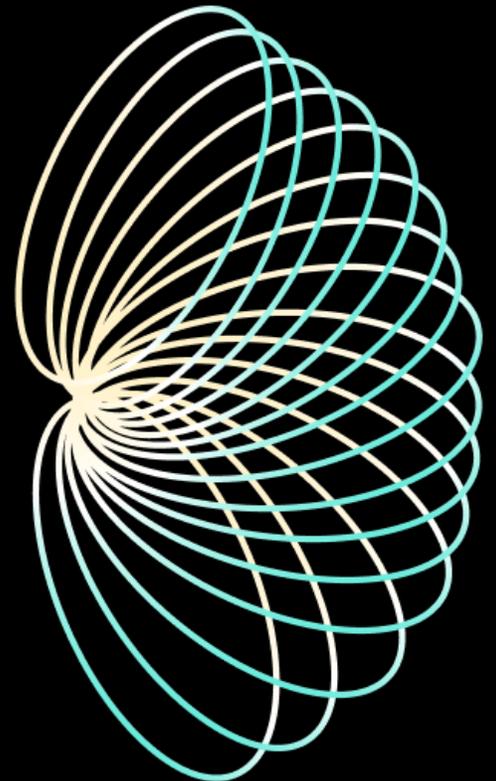


Zero Transaction Costs:

Unlike Ethereum, where gas fees are incurred by all users of blockchain, transactions will be free for a majority of end users of applications built on **hiP**. By staking hi Dollars, authorized members may access the distributed computing resources provided by nodes and execute smart contract functions on the network. Whilst the smart contract may charge fees or require a token stake from end users, they are not required to pay additional transaction fees to the network. In order for the network to be commercially viable, block producers will be compensated from a pool of hi Dollars that is derived from token inflation.

Forkless Upgrades:

Most extant blockchains require substantial community involvement and node operator coordination in order to complete software upgrades, thus stifling speed and innovation. Forkless runtime upgrades will allow for the continuous improvement of the core building blocks of **hiP** without the need for a hard fork. By updating the runtime logic of the blockchain in real-time, the complexity of upgrading systems and software for node operators is drastically reduced.



Multichain Parallel Transaction Processing

dApps have not been able to scale to a substantial user base due to inherent scalability limitations of the underlying blockchain. By requiring transactions to be processed strictly in sequence, this puts a limit on transaction speed and thus, scalability. **hiP** is designed for achieving virtually infinite throughput through three levels of parallel processing.

Level-1: Transactions are grouped into multiple batches, each of which contains independent ones that will be verified and executed simultaneously through a multithreading execution mechanism. Different batches will be executed sequentially whilst maintaining a proper sequence to allow dependency of transactions to be fully supported.

Level-2: Transactions submitted onto the network will be grouped and shared onto specific side chains in a deterministic manner, such that each side chain can execute those transactions in parallel maintaining a common global state.

Level-3: Transactions submitted can predetermine which individual chains are to receive and process. There can be three types of such multi-chain selections: 1) Broadcast: **hiP** will receive, execute and their relevant states will be fully synchronized; 2) Groupcast: Only a subset of **hiP** family chains will receive those transactions to process; 3) Unicast: one specific **hiP** will receive the transactions.

The combination of Level-1 and Level-2 will provide **hiP** with the capability to handle at least 100,000 transactions per second. However, by scaling horizontally through the implementation of Level-3, a multi-chain **hiP** network composed of N chains will be able to achieve $N * 100,000+$ TPS.



Onchain Account Recovery

People who choose not to leverage the services of centralized custodians risk everything on a piece of paper with 24 words - the seed phrase. Through the use of *recovery agents*, **hiP** has made it possible to recover a wallet without seed phrases and without centralization. Defined within a smart contract on the network and modifiable anytime, end users may appoint *recovery agents*, in the form of other people, devices, or third party services, to help regenerate private keys.

Core dApplications

We envision an ecosystem in which a wide range of services are delivered to our members by developers and contributors who are incentivised by hi Dollars. In order to ensure a consistent and flawless user experience for our potential 1 billion+ captive membership base, hi Foundation will provision a core suite of decentralized financial applications. This includes a decentralized exchange, lending and borrowing services, as well as asset-backed stablecoins.

hiP's superior speed and scalability, zero transaction fee token model, as well as a captive and fast growing membership base will quickly set itself apart from other blockchains to become the dominant smart contract platform for decentralized finance. Whilst Apple did not invent the smartphone, through exceptional user experience and an applications-first mindset, the iPhone drove mass adoption and ushered a new era of innovation in mobile technology. hiP will do the same for blockchain technology.