White-paper V 0.1
February 2020
info@paybchain.foundation
www.paybchain.foundation

paybchain

PAYBCHAIN is an innovative blockchain build as a hard fork out of the EOS blockchain. This ensures that the blockchain is compatible with the DApp ecosystem and provides the developers with more flexibility and convenience in launching decentralized applications on top of it. PAYBCHAIN is designed predominantly to support PAYPERBLOCK, a freelance platform for blockchain professionals.

DApps are revolutionizing the internet in multiple ways. PAYBCHAIN provides a robust, scalable and most convenient ecosystem to execute this revolution. The PAYBCHAIN blockchain is catered specifically for meeting the requirements of the developers. It offers the needed SDKs for DApp development and tutorials to promote the decentralized apps and their necessity in the modern financial world. It also provides the best possible infrastructure to our native DApp: PAYPERBLOCK.

Blockchain DApps can be built on top of only a few existing blockchains. The most predominantly used are Ethereum, EOS, and Tron. A problem arises in these blockchains: the ecosystem is quite not familiar with most of the normal developers and people. What makes it difficult is that these blockchains are based on different programming languages and have different set of rules and scalable operations. They are built for institutional transactions rather than DApp building. PAYBCHAIN is building only for the purpose of serving the DApp developers and their communities, which makes us a unique standalone platform for the DApp ecosystem. PAYPERBLOCK, our first application to be built on top of PAYBCHAIN, will prove how scalable and flexible our blockchain is.

PAYBCHAIN is the underlying blockchain for PAYPERBLOCK

A Decentralized Organization for developing DApp community

PAYBCHAIN is to handle the transactions of our own DApp PAYPERBLOCK as well as other DApps built on it.

Supports interoperability with other blockchains

Standalone Blockchain for the DApp Ecosystem

High level of support for DApp developers

Hard Fork out of EOS

More scalable and profitable DApps compared to competition

This whitepaper is a technical documentation of what PAYBCHAIN offers, its protocols and how it will benefit its early adopters. The next paragraph will explain key terminology regarding the project. The PAYBCHAIN blockchain is a decentralized operating system, which can support industrial-scale decentralized applications. We are giving a preview into the future with Distributed Autonomous Organizations (DAO), complementary to EOSIO. With the new era of Web 3.0 technologies, organizations are now composed of both centralized business organizations managed by people and distributed automated platforms. PAYBCHAIN is fully decentralized without any central authorities.

“DApps are not a solution for the present, they restructure the web of future.”

KEY TERMINOLOGY

BFT:

Byzantine Fault Tolerance. A Byzantine fault is a condition of a computer system, particularly distributed computing systems, where components may fail and there is imperfect information on whether a component has failed. It forms the basis of every blockchain, as they have very high tolerance to Byzantine faults.

BLOCKCHAIN:

A blockchain is a distributed ledger. Every transaction on the blockchain is validated through a consensus mechanism. It is decentralized and doesn't have any central servers. This makes it more secure than centralized transaction verification systems. It is also based on Peer to Peer technology (P2P) where there is no intervention of any intermediary parties

DAO:

A decentralized autonomous organization (DAO), sometimes labeled a decentralized autonomous corporation (DAC), is an organization represented by rules encoded as a computer program. This organization structure is transparent, controlled by shareholders and not influenced by a central government.

DAPP:

A decentralized application. A DApp is a computer application that runs on a distributed computing system. DApps have been mostly popularized by distributed ledger technologies, where DApps are often referred to as smart contracts.

DECENTRALIZATION:

There are no centralized authorities maintaining the network. Cryptocurrencies are decentralized: they don't have any centralized monetary authorities like banks monitoring all the transactions. Everyone on the network can view everyone's transactions and can validate any transactions. This transforms the authority of financial management from banks to normal civilians

EOS.IO:

The blockchain protocol developed originally by the company block.one and the address of the blockchain's website and GitHub repository. EOS is the native cryptocurrency of the original EOS.IO blockchain. EOS.IO was developed to minimize transaction costs while conducting a high amount of transactions per second. PAYBCHAIN is a hard fork of the EOS.IO blockchain, with substantial improvements on DApp development and ecosystem.

PAYPERBLOCK:

A DApp to be built on PAYBCHAIN by the entire core team of PAYBCHAIN to show how scalable and flexible our blockchain is. It is the first DApp to be built on PAYBCHAIN. It will function as a freelance platform on top of PAYBCHAIN.

paybchain

PAYBCHAIN
Key Features

- Free Rate Limited Transactions
- Low Latency Block confirmation (0.5 seconds)
- Low-overhead Byzantine Fault Tolerant Finality
- Designed for optional high-overhead, low-latency BFT Finality
- Smart contract platform powered by Web-Assembly
- Designed for Sparse Header Light Client Validation
- Scheduled Recurring Transactions
- Time Delay Security
- Hierarchical Role-Based Permissions
- Support for Biometric Hardware Secured Keys (e.g. Apple Secure Enclave)
- Designed for Parallel Execution of Context Free Validation Logic
- Designed for Inter Blockchain Communication

UNIQUE STRENGTHS OF PAYBCHAIN

DECENTRALIZED OPERATING SYSTEM PAYBCHAIN is a virtual server that companies can develop and run their decentralized applications on. Built-in cryptocurrency incentives encourage end-users and service providers to participate in maintenance of the ecosystem, buy and sell services and products and get rewarded for participation. PAYBCHAIN is committed to study and application of cryptoeconomics: a branch of science that focuses on decentralized digital economy.

FLEXIBILITY Delegated Proof-of-Stake (DPoS) as a staking model offers a solid level of flexibility. For example, in the case of any problem in a DAPP, the elected block producers can freeze it until the system is fixed. This means that not all nodes have to take care of chain maintenance.

SELF-RELIANCE PAYBCHAIN will generate a 5% natural inflation per year to avoid being reliant on any single foundation, individual, group or organization for its maintenance and development. The newly minted tokens will be shared amid platform's block producers based on their confirmation of transactions on the platform and also to the top three smart contracts or highest votes from holders of the tokens.

HARD FORK OF EOS

PAYBCHAIN makes use of the EOS.IO blockchain to introduce a new blockchain architecture designed to enable vertical and horizontal scaling of decentralized applications. This is achieved by creating an operating system-like construct upon which applications can be built. The software provides accounts, authentication, databases, asynchronous communication, and the scheduling of applications across many CPU cores or clusters. The resulting technology is a blockchain architecture that can ultimately scale up to millions of transactions per second. PAYBCHAIN eliminates user fees, and allows for quick and easy deployment and maintenance of decentralized applications, all in the context of a governed blockchain.

LOW LATENCY BFT IN PAYBCHAIN

PAYBCHAIN utilizes the only known decentralized consensus algorithm proven capable of meeting the performance requirements of applications on the blockchain, Delegated Proof of Stake (DPOS). Under this algorithm, those who hold tokens on a blockchain adopting the PAYBCHAIN may select block producers through a continuous approval voting system. Anyone may choose to participate in block production and will be given an opportunity to produce blocks, provided they can persuade token holders to vote for them. The PAYBCHAIN enables blocks to be produced exactly every 0.5 seconds and exactly one producer is authorized to produce a block at any given point in time. If the block is not produced at the scheduled time, then the block for that timeslot is skipped. When one or more blocks are skipped, there is a 0.5 or more second gap in the blockchain. Therefore, we reduce the latency of transactions on the DApp ecosystem to build scalable applications. This is achieved by the utilization of Low-Overhead Byzantine Fault Tolerance protocols.

WHAT'S NEW IN THE HARD FORK?

1: Deterministic Parallel Execution of Applications

2: Improved Performance & Reducing Communication Latency

3: Read-only Action Handlers

4: Partial Valuation of Block State

5: Atomic Transactions with multiple accounts

6: Subjective Best-effort Scheduling

7: Context-free Actions

By introducing all these technologies in our PAYBCHAIN we make it the best blockchain in the world for the DApp ecosystem. This reduces the use gap between conventional Apps and Decentralized Apps.

OUTCOMES OF THE HARD FORK

In order to gain widespread use, applications on the blockchain require a platform that is flexible enough to meet the following requirements:

Supporting Millions of Users:

Competing with businesses such as eBay, Uber, Airbnb, and Facebook requires a blockchain technology capable of handling tens of millions of active daily users. In certain cases, an application may not work unless a critical mass of users is reached and therefore a platform that can handle very large numbers of users is paramount.

Free Usage Application:

Developers need the flexibility to offer users free services; users should not have to pay in order to use the platform or benefit from its services. A blockchain platform that is free to use for users will likely gain more widespread adoption. Developers and businesses can then create effective monetization strategies to leverage the userbase.

Easy Upgrades and Bug Recovery:

Businesses building blockchain applications need the flexibility to enhance their applications with new features. The platform must support software and smart contract upgrades. All non-trivial software is subject to bugs, even with the most rigorous of formal verification. The platform must be robust enough to fix bugs when they inevitably occur.

Low Latency:

A good user experience demands reliable feedback with a delay of no more than a few seconds. Longer delays frustrate users and make applications built on a blockchain less competitive with existing non-blockchain alternatives. The platform should support the low latency of transactions.

Sequential Performance:

There are some applications that just cannot be implemented with parallel algorithms due to sequentially dependent steps. Applications such as exchanges need enough sequential performance to handle high volumes. Therefore, the platform should support fast sequential performance.

paybchain

KEYS TO SUCCESS

PAYBCHAIN recognizes that success in business is based on unconditional commitment and focus on transforming business goals into market reality. PAYBCHAIN commits to proffer solutions to the needs of DApp developers of all scales from hackathon projects and startups to enterprises through the PAYBCHAIN blockchain. We believe that the most important factor in defining success is value.

1: Promoting the PAYPERBLOCK DApp, which is contingent to PAYBCHAIN in multiple aspects

2: Maintaining the Ecosystem with zero downtime

3: Providing resources to developers

4: Creating a valuable developer community

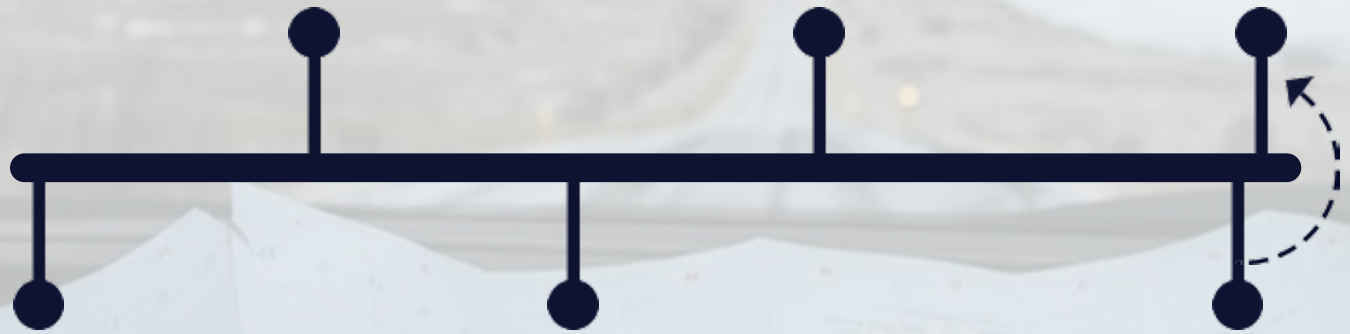
5: On-boarding various high-end businesses

6: Providing flexibility to all business needs

6: Support and constant up-gradation of standards

PAYBCHAIN ROADMAP

PROJECT TIMELINE



Q1 2020
Website Upgrade,
Finish Swap and Bounty,
Exchange Listings Whitepaper

Q2 2020
CMC & Coingecko
Listings

Q3 2020
Launch PAYPERBLOCK
Freelance Website,
Launch PAYBCHAIN
Blockchain & OS

Q4 2020
Desktop and Mobile
Wallets

Beyond Q1 2021
Push for Wide Scale
Adoption Across
Industries

Q1 2021
DPOS, Web 3.0 and
Industry 4.0
Compatibility


paybchain
info@paybchain.foundation | www.paybchain.foundation