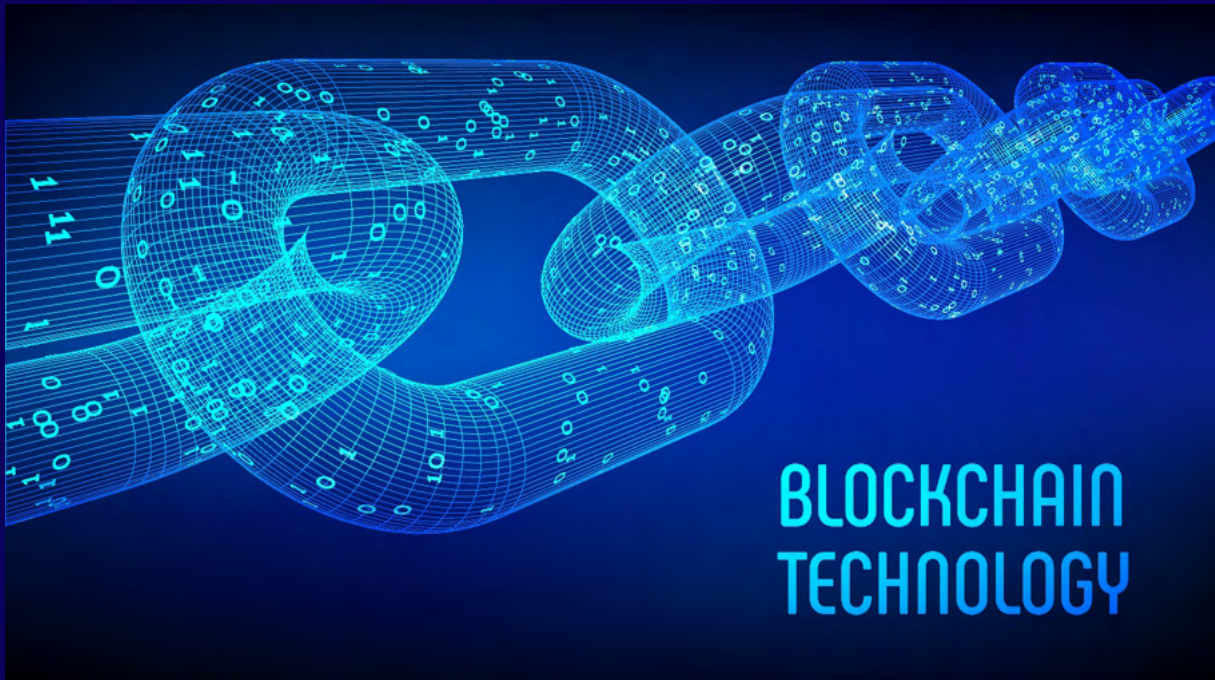




YEM FOUNDATION



## YEMChain v2.0 Development

YEMChain is an innovative blockchain technology that combines the best features of blockchain and cybersecurity. It provides fast, secure, transparent, and low-fee transactions with high-level encryption, making it an ideal platform for various applications. YEMChain aims to empower businesses and individuals to transact with each other in a trustless environment, without the need for intermediaries.

The YEMChain platform is built on the concept of community-driven development, where users are encouraged to participate actively in the platform's governance and decision-making processes.

The current version is a customized blockchain implementation, that has remained private since its launch in 2018. Therefore the following points are relevant and need to be discussed:

1. Information on YEMChain's security measures is limited, and it's unclear how the platform handles potential security threats.

2. From the public's perspective, it's unclear how YEMChain handles user privacy on-chain, as there is limited information available on the platform.

This was done for a good reason, to protect and avoid attacks on the network. Since its launch, there have been no attacks or breaches. This same methodology will prevail for the upcoming YEMChain v2.0, with some major differences in the core structure and blockchain protocols being used.

## So why are things changing now?

We have listened to both third-party companies who have considered integrating with the YEMChain and the general blockchain community. They have said they like to see more transparency with how our blockchain protocol works and can be integrated with. We have always had closed source code and therefore any third parties would only be allowed to interact with it using our own internally developed APIs.

## Now let's talk about Hyperledger Besu



Hyperledger Besu is a prominent open-source Ethereum client that enables developers to build decentralized applications (dApps) and implement enterprise blockchain solutions with unparalleled flexibility and scalability. As part of the Hyperledger initiative, Besu aims to provide a robust and feature-rich platform that caters to diverse use cases within the blockchain ecosystem.

## 1. Key Features of Hyperledger Besu

### a. Ethereum-Compatibility

Hyperledger Besu stands out due to its seamless integration with the Ethereum ecosystem. It is fully compatible with the Ethereum Virtual Machine (EVM) and supports the execution of Ethereum smart contracts. This compatibility enables developers to leverage existing tools, libraries, and knowledge while building on the Besu platform.

## **b. Permissioning System**

One of Besu's defining features is its sophisticated permissions system. It allows network participants to define access controls and permissions, making it suitable for both public and private blockchain networks. This feature ensures that data visibility is maintained according to the requirements of the network participants.

## **c. Pluggable Consensus Mechanisms**

Besu provides the flexibility to choose from various consensus mechanisms, including Proof of Work (PoW) and Practical Byzantine Fault Tolerance (PBFT). This adaptability makes Besu suitable for different use cases, ranging from public blockchains to consortium networks requiring high throughput and consensus finality.

## **d. Privacy and Confidentiality**



In the realm of enterprise blockchain, privacy and confidentiality are paramount. Hyperledger Besu incorporates private transactions and permission state management, ensuring sensitive business data remains confidential while still benefiting from the advantages of blockchain technology.

## 2. EVM (Ethereum Virtual Machine) blockchain protocol

Businesses choose an EVM (Ethereum Virtual Machine) blockchain protocol for various reasons, as it offers several advantages and capabilities:

1. **Smart Contracts:**



EVM-based blockchains support smart contracts, self-executing agreements with predefined rules. This can automate various business processes, reducing the need for intermediaries and enhancing efficiency.

2. **Interoperability:** EVM-compatible chains, like Binance Smart Chain and Polygon, allow businesses to leverage the broader Ethereum ecosystem, providing access to various tools, assets, and services.

3. **Tokenization:**



EVM blockchains facilitate the creation and management of tokens, enabling businesses to issue their cryptocurrencies, security tokens, or utility tokens for fundraising and various use cases.

4. **Proven Technology:** Ethereum, the most well-known EVM blockchain, has a track record and a large developer community. Businesses may benefit from the stability and innovation offered by such established platforms.

5. **Security:** EVM blockchains employ robust cryptographic techniques and consensus mechanisms like Proof of Stake (PoS) or Proof of Work (PoW) to secure transactions and data, reducing the risk of fraud or data manipulation.

## 6. Global



## Reach:

EVM blockchains are accessible worldwide, providing businesses with a global user base without the need for extensive infrastructure or international expansion.

7. **Immutable Records:** Transactions on EVM blockchains are stored in a tamper-proof and transparent manner, making them ideal for applications requiring secure record-keeping, like financial services, supply chain tracking, or voting systems.
8. **Open-Source-Development:** EVM protocols are typically open-source, allowing businesses to build custom solutions and leverage a wealth of existing open-source tools and libraries to save on development costs.
9. **Community Support:** EVM blockchains benefit from active and passionate communities of developers and users. This can provide businesses with support, resources, and a network of potential partners and customers.

## 3. Use Cases of Hyperledger Besu

### a. Enterprise Blockchain Solutions

Hyperledger Besu finds its sweet spot in enabling enterprises to adopt blockchain technology for optimizing their operations. It facilitates the creation of private, permissioned networks that can streamline processes, reduce intermediaries, and enhance transparency among stakeholders.

### b. Supply Chain Management

The complexities of modern supply chains can be simplified using Hyperledger Besu. It provides a secure and transparent environment for tracking goods from source to destination, enabling efficient inventory management, authentication of product origins, and real-time updates for all involved parties.

## **c. Financial Service**

In the realm of finance, Besu can revolutionize how transactions are conducted. It ensures secure, tamper-proof records of financial operations, accelerates settlement times and reduces fraud by providing an immutable ledger shared across authorized participants.

## **d. Public Sector Applications**

Government agencies can benefit from Hyperledger Besu by using it to create secure systems for recordkeeping, identity management, and public service delivery. The transparency and security of blockchain technology enhance citizen trust and streamline administrative processes.

## **e. Financial Services**

A use case for financial services is a scenario or application where financial products, technologies, or services are utilized to address a specific financial need or problem. Financial services encompass a wide range of activities, including banking, investment, insurance, lending, payments, and more.

# **4. The new infrastructure**

YEMChain v2.0 will be implemented using Hyperledger Besu on a Private Network. This means that it is not connected to any Public mainnet, such as Ethereum, Polygon, Solana, etc. thereby ensuring that both privacy and security remain.

Several nodes will be configured that will conform to the IBFT 2.0 proof of authority (PoA) consensus protocol and provide security, privacy, scalability, and high availability.

We propose that the current functionality for transaction inquiries available at yemchain.com will remain for now. However, there will be a new blockchain explorer that connects directly to the Hyperledger Besu nodes. For those of you who are familiar with block explorers such as etherscan.io, you will instantly see the similarities. After all, both etherscan and the YEMChain v2.0 are using the same core of an EVM (Ethereum Virtual Machine). The explorer will have several color themes to choose from, be mobile responsive, and be available in several languages. This explorer has been built from scratch by our Director of Information Technology, Steve Hodgkiss.

For the blockchain consensus to function, all transactions and generated blocks consume Gas. However, as this is a Private Blockchain implementation, we can set the Gas Price to ZERO, thereby ensuring that no ETH fees need to be paid. As for internal usage fees, YEMChain has a low transaction fee of 0.01%, which is significantly lower than the fees charged by many other blockchain platforms. For many transaction types, the fee is waived, such as on Cashback and Reward transactions.

## 5. Conclusion

YEMChain v2.0 represents an exciting evolution of blockchain technology, driven by a commitment to transparency and user feedback. The platform's decision to integrate with Hyperledger Besu, a leading open-source Ethereum client, demonstrates a dedication to providing a secure and efficient blockchain solution for businesses and individuals.

Hyperledger Besu's key features, including Ethereum compatibility, a robust permissions system, pluggable consensus mechanisms, and a focus on privacy and confidentiality, make it a compelling choice for YEMChain's upgrade. This collaboration allows YEMChain v2.0 to leverage the advantages of the Ethereum Virtual Machine (EVM) blockchain protocol, including smart contracts, interoperability, tokenization, security, and a well-established community.

The proposed implementation on a Private Network using the IBFT 2.0 consensus protocol ensures privacy and security while maintaining transaction functionality. The introduction of a new blockchain explorer that resembles well-known explorers like etherscan.io enhances user experience. The ability to set Gas Prices to ZERO and low transaction fees, including fee waivers for specific transactions, demonstrates a commitment to user-friendly and cost-effective blockchain interactions.

This strategic shift towards greater transparency and functionality in YEMChain v2.0 reflects a thoughtful response to user feedback and the evolving needs of the blockchain community. By integrating with Hyperledger Besu and enhancing the user experience, YEMChain is poised to empower businesses and individuals to transact securely and efficiently in a trustless environment. This update holds the promise of a brighter future for the YEMChain ecosystem, benefiting both existing users and those who will join in the future.

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