Kaspa Report

Valour Insights powered by Reflexivity Research

valour | REFLEXIVITY RESEARCH

About the Authors

Valour

Valour Inc. and Valour Digital Securities Limited (together, "Valour") is a trusted leader in issuing exchange-traded products ("ETPs") that enable retail and institutional investors to access digital assets like Ethereum in a simple and secure way via their traditional bank account. Valour is part of the asset management business line of DeFi Technologies Inc. (CBOE CA: DEFI) (GR: R9B) (OTC: DEFTF). Backed by a globally esteemed team of experts with extensive experience in financial markets and digital assets, we are committed to revolutionising the way individuals and institutions interact with the evolving digital asset ecosystem.

Reflexivity Research

Reflexivity Research is one of the fastest growing research firms in the disruptive world of blockchain and cryptocurrencies. The company, founded by Will Clemente and Anthony Pompliano and acquired by DeFi Technologies Inc., aims to provide crypto-native research in easily digestible formats for traditional finance (TradFi) investors. Since launch, Reflexivity Research has partnered with some of the largest financial companies in the world and counts readers across major hedge funds, public company C-Suites and the most respected family offices. You can subscribe at www.reflexivityresearch.com

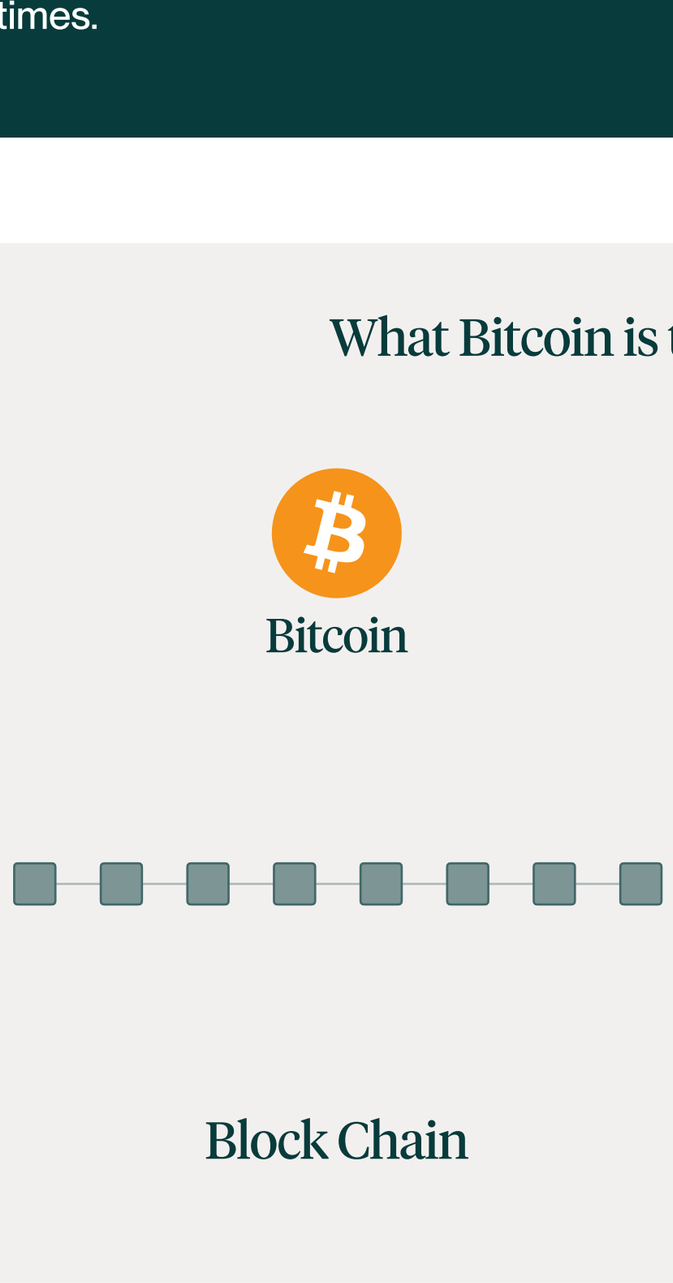
Table of Contents

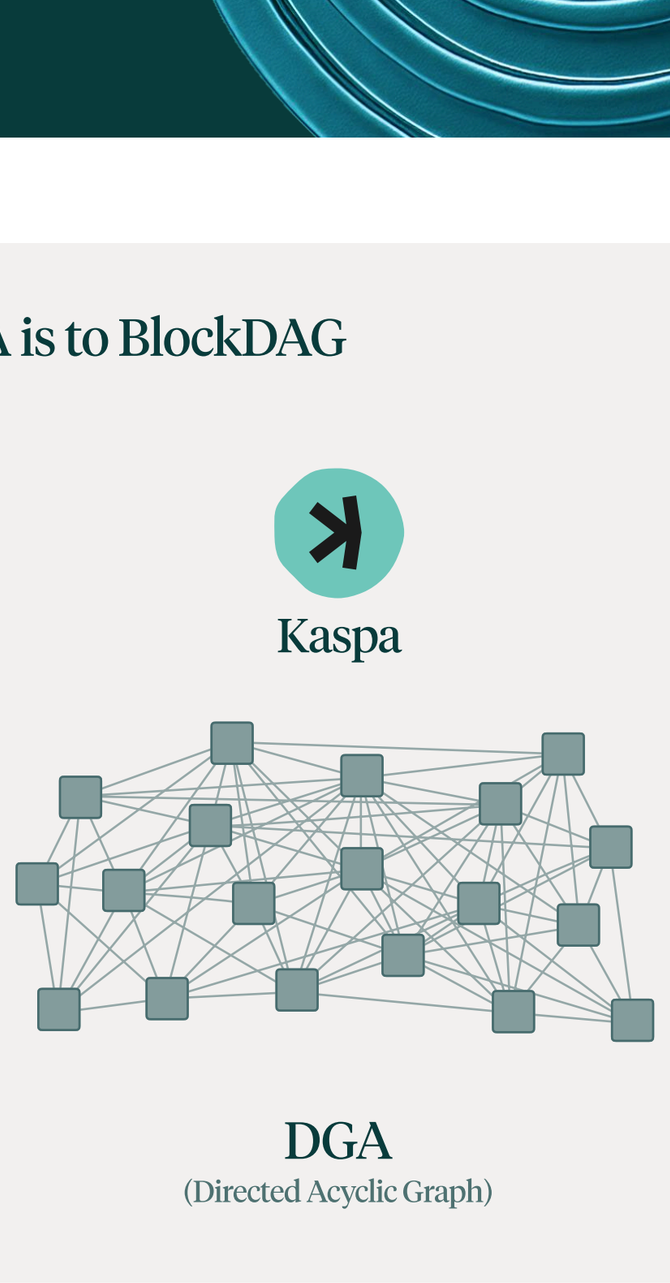
What is Kaspa?

Kaspa is a Layer 1 blockchain platform designed to address the limitations of traditional blockchain systems, particularly in terms of speed, scalability, and decentralization. Launched in November 2021, Kaspa introduces a unique architecture that enables rapid transaction processing without compromising the foundational principles of security and decentralization.

Kaspa implements the GHOSTDAG (Greedy Heaviest Observed Subtree Directed Acyclic Graph) protocol, an evolution of the traditional Nakamoto Consensus used by Bitcoin. In conventional blockchains, blocks are added sequentially, and any simultaneous block creations can lead to orphaned blocks—blocks that are discarded and do not contribute to the chain. Kaspa's GHOSTDAG protocol, however, allows these parallel blocks to coexist and orders them in consensus, forming a blockDAG structure. This approach significantly increases the network's throughput and reduces transaction confirmation times.

What Bitcoin is to Blockchain, KASPA is to BlockDAG





The native cryptocurrency of the Kaspa network is KAS, which serves as the medium for transaction fees and rewards for miners. With a circulating supply of approximately ~26.3 billion KAS and a maximum supply capped at around 28.7 billion, the tokenomics are designed to support the network's growth while preventing inflationary pressures. This controlled supply mechanism ensures the long-term sustainability and value proposition of the KAS token.

Kaspa's development is community-driven, with an open-source codebase that encourages collaboration and innovation. The absence of centralized governance allows for a more democratic decision-making process, where stakeholders can propose and vote on network upgrades and changes. This inclusive approach fosters a vibrant ecosystem of contributors and users, continually enhancing the platform's capabilities and applications.

Exploring the architecture of Kaspa

Kaspa's architecture represents a significant evolution in blockchain technology, addressing the limitations of traditional linear blockchains through its innovative blockDAG structure and the implementation of the GHOSTDAG protocol. This design enables high scalability, rapid transaction processing, and robust security, positioning Kaspa as a leading Layer-1 blockchain platform.

Unlike conventional blockchains that add blocks in a linear sequence, Kaspa's blockDAG architecture enables the simultaneous creation and confirmation of multiple blocks. In this structure, each block can reference multiple predecessors, forming a graph of interconnected blocks. This approach eliminates the occurrence of orphaned blocks—blocks that are discarded due to simultaneous mining, by integrating all blocks into the ledger. The result is a more efficient and scalable network capable of handling high transaction volumes without compromising security.

Central to Kaspa's architecture is the GHOSTDAG protocol. This protocol generalizes the traditional Nakamoto Consensus by allowing parallel blocks to coexist and ordering them in consensus. GHOSTDAG evaluates all blocks, including those mined simultaneously, and arranges them based on their connectivity and the amount of work invested. This method ensures that well-connected, honest blocks are prioritized, enhancing the network's security and efficiency.

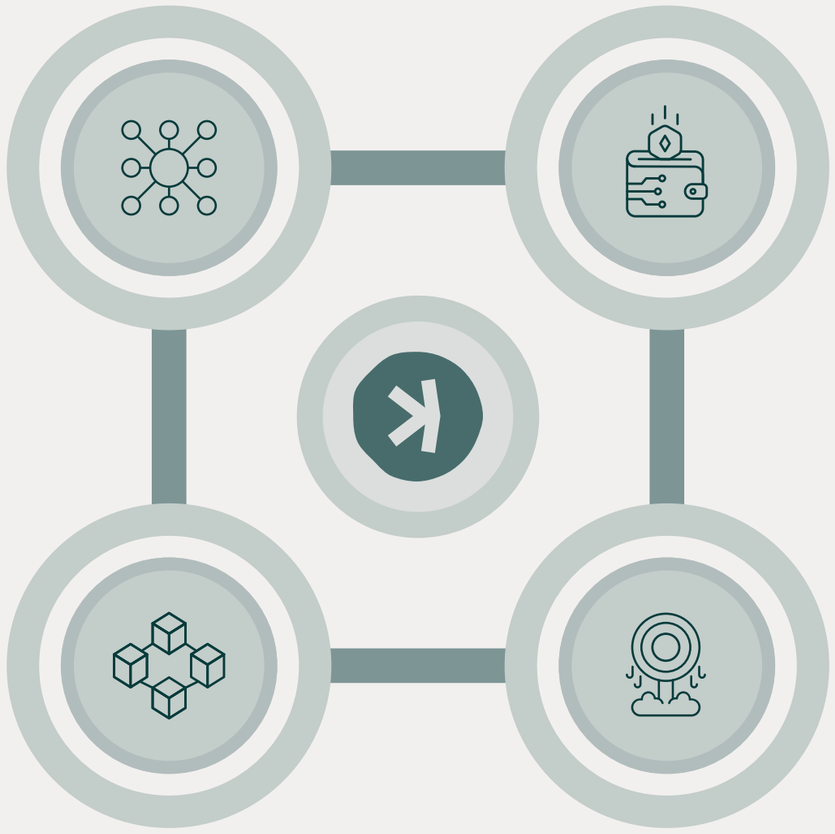
What is a GHOSTDAG?

Source: iq.wiki

Kaspa

DIRECTED ACYCLIC. GRAPH (DAG) STRUCTURE

GHOSTDAG utilizes a Directed Acyclic Graph (DAG) structure, unlike the blockchain structure used by Bitcoin and other cryptocurrencies. In a DAG, transactions are represented as vertices connected by edges that indicate the order of transactions.



HIGH THROUGHPUT

Kaspa, using GhostDAG, overcomes traditional cryptocurrencies slow block rate, enhancing throughput capacity by optimizing security, bandwidth, and network infrastructure

DECENTRALIZED AND TRUSTLESS CONSENSUS

GHOSTDAG'S DAG structure and consensus algorithm help ensure that transactions are processed quickly and securely while maintaining decentralization.

FAST TIME TO FINALITY

Kaspa's consensus layer enables rapid, subsecond confirmations, providing a swift initial confirmation suitable for applications requiring instant proof of publication, like traditional e-commerce.

The network utilizes the kHeavyHash algorithm, a modification of the traditional SHA-256 hashing algorithm, designed to be more energy-efficient and suitable for high-throughput block creation. This algorithm allows for effective mining using both general-purpose hardware and specialized mining equipment, promoting decentralization by enabling a wider range of participants to contribute to network security.

Transactions are processed rapidly due to the high block rate facilitated by the blockDAG structure. The network currently achieves one block per second, with plans to increase this rate significantly. This rapid block generation leads to swift transaction inclusion in the ledger. Moreover, the GHOSTDAG protocol ensures that all blocks are considered in the consensus process, providing immediate confirmation of transactions and reducing the time required for finality.

Kaspa's architecture is designed to scale efficiently as network usage grows. The blockDAG structure allows for multiple parallel blocks, effectively increasing the network's capacity to handle transactions.

The planned transition to the Rust programming language is expected to further enhance performance, targeting a block rate of 32 blocks per second, thereby increasing the network's ability to support a large number of transactions per second.

Security in Kaspa's network is maintained through its PoW consensus and the GHOSTDAG protocol. By incorporating all blocks into the ledger and ordering them based on their connectivity and work, the network mitigates the risks associated with orphaned blocks and potential attacks.

The decentralized nature of mining, facilitated by the kHeavyHash algorithm, further enhances security by preventing centralization of mining power. Additionally, the network's design ensures that even as block rates increase, the security guarantees remain robust, maintaining the integrity of the blockchain.

Kaspa is committed to maintaining a decentralized network. The fair launch of the KAS token, without pre-mining or initial coin offerings, ensures an equitable distribution of tokens. The PoW consensus mechanism, combined with the energy-efficient kHeavyHash algorithm, allows a diverse group of miners to participate, preventing the concentration of mining power and promoting a healthy, decentralized ecosystem.

Kaspa vs. the competitors

Kaspa distinguishes itself through its unique blockDAG architecture and the GHOSTDAG consensus protocol, aiming to address scalability and speed limitations inherent in traditional blockchains. When comparing Kaspa to established platforms like Bitcoin, Ethereum, and Solana, several key differentiators emerge.

Ethereum, known for its smart contract functionality, has faced scalability challenges, leading to network congestion, elevated gas fees, and ultimately, the rollup-centric roadmap. Kaspa, while currently focusing on high-speed transactions and scalability through its PoW-based blockDAG architecture, does not yet offer the extensive smart contract capabilities that Ethereum provides.

Solana is another competitor known for its high throughput, achieving thousands of TPS through a combination of PoS and Proof of History (PoH) mechanisms. While Solana offers impressive speed, it has encountered issues related to network stability and decentralization, with concerns about validator centralization. Kaspa's approach emphasizes a fair launch with no pre-mining or centralized token allocations, promoting greater decentralization. Additionally, Kaspa's blockDAG architecture inherently supports high scalability without compromising network stability, offering an alternative solution to the challenges faced by Solana.

In terms of potential verticals, Kaspa's high throughput and low latency make it well-suited for applications requiring rapid transaction processing. For instance, in the realm of stablecoins, where swift and secure transactions are paramount, Kaspa's infrastructure could facilitate real-time settlements, enhancing the efficiency of digital payment systems. Moreover, its scalable architecture can support microtransactions, making it ideal for gaming platforms and content streaming services that demand high-frequency, low-value transactions.

While privacy features are not currently a primary focus of Kaspa, its open-source and community-driven development model allows for the potential integration of privacy-enhancing technologies in the future. This adaptability could enable Kaspa to expand into verticals where transaction confidentiality is crucial, such as confidential financial services or private data exchanges.

Kaspa's commitment to a fair launch and decentralization also positions it favorably within sectors that prioritize transparency and community governance. Industries like decentralized finance (DeFi) could benefit from Kaspa's robust and scalable infrastructure, providing a secure foundation for various financial instruments and services without the pitfalls of centralization.

Furthermore, Kaspa's architecture is conducive to the development of decentralized physical infrastructure networks (DePIN), such as IoT networks and decentralized storage solutions. Its ability to handle high transaction volumes with low latency ensures that data from numerous devices can be processed efficiently, supporting the seamless operation of such networks.

In comparison to its competitors, Kaspa offers a unique blend of scalability, security, and decentralization. While platforms like Bitcoin and Ethereum have established themselves as leaders in the cryptocurrency space, they face challenges related to scalability and transaction speed. Solana, although addressing some of these issues, has encountered concerns regarding network stability and decentralization.

Valour Kaspa SEK

Valour Kaspa (KAS) SEK is an exchange-traded product (ETP) tracking KAS, the native token of the Kaspa blockchain. Utilizing its GhostDAG protocol, Kaspa processes blocks in parallel, enabling fast transaction finality and high scalability. The KAS token is used for transaction fees and network security through mining. With its efficient and decentralized design, Kaspa supports scalable blockchain applications, empowering developers and users alike.

Conclusion

Kaspa represents a meaningful step forward in Layer-1 blockchain design by reconciling throughput, security, and decentralization in a single protocol. Its blockDAG architecture and GHOSTDAG consensus allow thousands of participants to mine simultaneously without orphaning blocks, driving transaction finality to as little as one second today and targeting sub-second speeds tomorrow. By coupling an energy-efficient kHeavyHash algorithm with a fair-launch token model, Kaspa maintains resistance to mining centralization and keeps its community empowered and engaged.

While Kaspa does not yet match platforms like Ethereum in smart-contract richness or Solana in staking-based throughput, it carves out a niche for use cases where raw speed and censorship resistance are paramount, think instant payments, microtransactions, and real-time data feeds for DePIN or IoT networks. Its open-source, community-governed approach also lays the groundwork for future enhancements, including privacy layers or more advanced scripting capabilities, without sacrificing the core benefits that distinguish it today.

Looking ahead, Kaspa's success will hinge on developer adoption and ecosystem growth, translating its technical strengths into practical applications that solve real-world problems. If it can attract wallets, stablecoin issuers, gaming studios, and infrastructure providers to build on its network, Kaspa may well join the ranks of blockchains that reshape how value and information move online. Either way, its innovative use of a directed acyclic graph and proof-of-work consensus ensures it will remain a compelling experiment in scalable, decentralized ledger design.

Disclaimer

This document complements any other disclaimer published by Valour on its website. Please carefully read it in addition to the Disclaimer, Privacy Policy and Terms of Use published by Valour at www.valour.com

This document does not constitute an offer to sell, a solicitation of an offer to buy, or a recommendation to purchase securities issued by Valour.

The information contained herein should not be relied upon as the basis for any investment decision or commitment in any jurisdiction. This document does not provide investment advice, and investors should seek independent professional guidance before making any investment decisions.

The distribution of this document and the information herein may be restricted by law in certain jurisdictions. This document does not constitute an offer to sell securities in Switzerland, the European Economic Area, the United States, Canada, the United Kingdom, Australia or Japan.

This document serves as an advertisement within the meaning of the Swiss Financial Services Act (FinSA) and does not constitute a prospectus. Within the European Economic Area, this communication is directed solely at qualified investors.

The securities issued by Valour have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the "Securities Act"). These securities may not be offered or sold in the United States without registration or an applicable exemption from the Securities Act's registration requirements. No public offering of these securities will take place in the United States.

In the United Kingdom, this document is only intended for distribution to and use by: (i) investment professionals as defined in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"); (ii) high net worth entities and other persons to whom it may lawfully be communicated under Article 49(2)(a) to (d) of the Order; or (iii) persons to whom it may otherwise be lawfully distributed under circumstances where section 21(1) of the Financial Services and Markets Act 2000 does not apply.

Valour provides the following important information and warnings, regarding the Valour website and reports published by Valour:

1. No investment Advice: Valour is not an investment advisor and does not recommend or endorse any specific investment products or strategies. Investors should not rely on information from this website or report when making investment decisions.

2. Risk Consideration: Prospective investors should carefully review the risks associated with any investment product, as detailed in the offering memorandum or similar documents provided by the issuer.

3. Tax Implications: Valour is not a tax advisor. Consult a qualified tax professional to understand the tax consequences of any investment decision.

4. Index Inclusion: The inclusion of an asset in an index does not constitute a recommendation to buy, sell, or hold that asset.

5. Information Purpose: Website materials are for informational purposes only, based on publicly available information from sources believed to be reliable.

6. Content Usage: The content on this website may not be modified, reproduced, or distributed without prior written permission from Valour.

7. Disclaimer of Warranties: Valour provides the content "as is" without any warranties of accuracy, completeness, timeliness, or fitness for a particular purpose.

8. Limitation of Liability: Valour is not liable for any damages resulting from the use of the content, including but not limited to direct, indirect, incidental, or consequential damages.

9. Investment Risks: Investments in cryptocurrencies and digital assets carry high risks, including the potential for total loss. Prices may vary across trading platforms, and investments may become illiquid.

10. Due Diligence: Investors should do their own research and carefully review all risk factors disclosed by relevant trading platforms, or in product documents, or otherwise before making any investment decisions.