

Hoosat Network whitepaper

ASIC Resistant GhostDAG: Low entry to crypto!

Building a Scalable and Decentralized Future

The Hoosat Network Blockchain is a new blockchain project built on a powerful foundation: the Kaspas blockchain with its innovative GhostDAG protocol.

What is GhostDAG?

GhostDAG stands for "Greedy Heaviest Observed Sub-Tree Directed Acyclic Graph." It's a complex term, but here's the key takeaway: unlike traditional blockchains, GhostDAG allows for much faster transactions by processing them simultaneously. This is a game-changer for scalability and transaction speed. Even better, Kaspas achieves this without sacrificing security, making it a robust solution for various blockchain applications.

The Challenge: Centralization Through Mining

Despite Kaspas strengths, there's a critical issue in blockchain technology: the dominance of large mining farms using specialized ASIC (Application-Specific Integrated Circuit) hardware. This centralizes power, contradicting the core principle of blockchain: decentralization.

How Hoosat Network Creates a Fairer System

The Hoosat Network tackles this challenge head-on. It's a fair launch fork of Kaspas that uses a different hashing algorithm, one that's resistant to ASICs and FPGAs (Field Programmable Gate Arrays). This means regular GPUs (Graphics Processing Units) found in many computers can effectively participate in mining.

Why This Matters

By making mining more accessible with GPUs, Hoosat Network empowers individual miners and fosters a more decentralized network. This inclusivity strengthens the network's security and aligns perfectly with the core principles of blockchain technology.

In essence, Hoosat Network offers a future-proof solution: a scalable, secure, and decentralized blockchain built for widespread adoption.

Introduction

Kaspa's GhostDAG: A Game Changer for Blockchain

Blockchain faces a tough challenge: balancing speed, security, and decentralization. Kaspa's GhostDAG (Directed Acyclic Graph) protocol offers a groundbreaking solution.

Traditional blockchains add blocks one by one, like a train. Kaspa's DAG is more like a web, allowing for many blocks to be added simultaneously. This skyrockets transaction processing speed.

But here's the magic: despite this speed, GhostDAG maintains strong security through a clever conflict resolution system. This means faster transactions without compromising safety.

This innovative approach tackles the blockchain trilemma head-on. It offers incredible scalability, reduces wait times for transactions, and keeps the network secure.

By exploring how GhostDAG integrates with the Hoosat Network, we can unlock the potential of this revolutionary protocol. Kaspa's vision paves the way for a future where blockchains are fast, secure, and accessible to everyone.

The Evolving Face of Mining: GPUs vs. ASICs

The way transactions are secured in blockchain has changed dramatically. Originally, anyone with a graphics card (GPU) could help secure the network. Now, specialized mining machines called ASICs dominate the scene.

While ASICs are incredibly efficient, they come with a downside: centralization. Their high cost and complexity make them only accessible to well-funded operations. This threatens the core idea of blockchain: a decentralized system.

GPU mining, on the other hand, is more inclusive. Anyone with a computer can participate, fostering a more balanced network. This is why networks like Hoosat prioritize GPU mining – it promotes decentralization and accessibility.

However, the mining landscape is constantly evolving. Factors like electricity costs, hardware advancements, and the search for energy-efficient solutions all play a role.

The Hoosat Network needs to consider these complexities. We need to understand how mining choices impact security, efficiency, and decentralization. Additionally, innovations like Kaspa's GhostDAG protocol could potentially reshape the future of mining.

Why GPU Mining Matters

The Hoosat Network champions GPU mining for a reason - it strengthens the network in several key ways:

- **Power to the People:** GPUs are everywhere! They're in our computers, making mining accessible to anyone with a basic setup. This broadens participation and fosters a truly decentralized network.
- **Strength in Numbers:** Unlike centralized ASIC mining, GPUs distribute mining power across the network. This makes it much harder for any one entity to take control, significantly reducing the risk of attacks and keeping the network secure.
- **Open and Sustainable:** GPU mining is more inclusive. It opens the door to smaller miners and enthusiasts, promoting a diverse and healthy network. Plus, GPUs are generally more energy-efficient compared to power-hungry ASICs.
- **No More Monopolies:** Large mining farms can threaten decentralization. GPU mining helps prevent this by keeping participation open and accessible. This ensures the network stays true to the core principles of blockchain.

By advocating for GPU mining, the Hoosat Network takes a stand for a more decentralized, inclusive, and secure future for blockchain technology.

Building a Fairer, Stronger Blockchain

The Hoosat Network is built on the idea of a more equitable, secure, and decentralized future for blockchain. We believe mining plays a crucial role in achieving this vision. That's why we prioritize GPU mining over ASIC mining. This approach strengthens the network in several key ways:

- **Power to the People:** GPU mining removes the barriers to entry faced with specialized ASIC hardware. Anyone with a GPU, from individuals to small groups, can participate in securing the network. This broader participation fosters a more decentralized and secure ecosystem.
- **Open Doors, Lower Costs:** Compared to ASICs, GPUs are significantly more affordable and readily available. This opens the door for a wider range of people to contribute to the network, regardless of their budget or technical expertise.
- **Versatility is Key:** Unlike single-purpose ASICs, GPUs are multi-functional. They can be used for mining, gaming, and other computational tasks. This flexibility makes them a more attractive option for miners seeking a valuable hardware investment.

By prioritizing GPU mining, the Hoosat Network embraces the core principles of blockchain: decentralization, accessibility, and inclusivity. This approach not only creates a fairer playing field but also strengthens the overall health and security of the network.

Stronger Network, By Design

The Hoosat Network's focus on GPU mining goes beyond just accessibility. It strengthens the network's security in several key ways:

- **Defense Against Takeovers:** Widespread GPU mining fosters a decentralized network, making it much harder for any one entity to gain control. This significantly reduces the risk of 51% attacks, where a malicious actor could manipulate transactions.
- **A Community on Watch:** A diverse group of miners with a stake in the network's success creates a strong defense. These participants actively contribute to the network's security and are more likely to identify and report suspicious activity.
- **Adaptability for the Future:** Unlike ASIC-dependent networks, GPU mining allows for easier adaptation to new security threats. The Hoosat Network can quickly implement upgrades and respond to emerging challenges, keeping the network secure over the long term.

By prioritizing GPU mining, the Hoosat Network embraces the core values of blockchain: decentralization, inclusivity, and security. This approach not only fosters a fairer and more accessible network but also ensures a future-proof foundation for the entire blockchain ecosystem.

Enabling Innovation: Smart Contract Functionality

The Hoosat Network extends beyond its commitment to decentralization and ASIC resistance. We envision a future where the network empowers developers and users through the implementation of smart contracts.

Smart contracts are self-executing agreements stored on the blockchain. They eliminate the need for intermediaries, reduce transaction costs, and automate complex processes. By integrating smart contracts, the Hoosat Network unlocks a vast array of possibilities:

Decentralized Applications (dApps)

Smart contracts pave the way for the development and deployment of dApps on the Hoosat Network. These dApps can encompass a wide range of functionalities, from secure marketplaces and peer-to-peer lending platforms to innovative gaming experiences and decentralized social networks. The possibilities are truly limitless, fostering a vibrant ecosystem of applications built upon the secure foundation of the Hoosat Network.

Streamlined Workflows and Enhanced Efficiency

Smart contracts automate pre-defined conditions and actions, eliminating the need for manual intervention and third-party verification. This translates to streamlined workflows, faster transaction processing, and reduced costs for users and businesses alike. Imagine a world where automatic payments are triggered upon successful delivery of goods, or secure escrow services facilitate trustless transactions. The possibilities for streamlining processes and boosting efficiency are vast.

Programmable Money and DeFi (Decentralized Finance)

Smart contracts unlock the potential for programmable money. This allows for the creation of innovative financial instruments such as tokenized assets, stablecoins, and decentralized lending protocols. These advancements pave the way for a more inclusive and accessible financial system, empowering users to participate in previously restricted financial markets without relying on traditional financial institutions.

Secure and Trustworthy Interactions

Smart contracts operate on a secure and transparent blockchain, ensuring immutability and tamper-proof execution. This fosters trust between participants in a transaction, even when they are anonymous or geographically dispersed. This fosters a new era of trustless interactions, particularly valuable in areas like supply chain management, where transparency and traceability are paramount.

Fostering Innovation and Community Growth

The introduction of smart contracts attracts a wider pool of developers to the Hoosat Network. These developers will leverage their expertise to create novel applications and functionalities, further enriching the network's ecosystem. This fosters a vibrant and collaborative community around the Hoosat Network, driving innovation and propelling the network's growth.

By integrating smart contracts, the Hoosat Network takes a significant step towards becoming a truly versatile and future-proof blockchain platform. This empowers developers and users to explore a vast array of possibilities, ultimately fostering innovation and shaping the future of decentralized applications.

Technical specifications

The Hoosat Network prioritizes a decentralized and secure future. Our choice of Blake3 as the hashing algorithm isn't just technical; it's a strategic decision. Blake3 shines in its resistance to ASICs, specialized mining hardware that can centralize power. This ensures fairer access to mining for everyone, not just those with deep pockets. By promoting a diverse mining landscape, Blake3 strengthens the network's security against malicious attacks. This commitment to decentralization and security paves the way for a thriving Hoosat Network ecosystem.

ASIC Resistance and Decentralization

Unlike some algorithms susceptible to specialized hardware (ASICs), Blake3 thrives on regular computers. This "ASIC resistance" is a game-changer. Without ASICs dominating the scene, mining becomes accessible to everyone with a CPU or GPU. This fosters a more decentralized network, where power isn't concentrated in the hands of a few. The Hoosat Network, by adopting Blake3, embraces a more egalitarian approach, ensuring a fairer and more resilient network structure for everyone.

Enhanced Security Through Diversity

Blake3's resistance to ASICs goes beyond just fairness. It strengthens the very foundation of the Hoosat Network: its security. By preventing the dominance of specialized mining hardware (ASICs), Blake3 fosters a decentralized mining landscape. This makes it much harder for any single entity to gain control over the network's hashing power, a critical factor in preventing 51% attacks. These attacks allow malicious actors to manipulate transactions or even create duplicates. With a diverse group of miners, thanks to Blake3, such attacks become far too difficult and resource-intensive, safeguarding the integrity and trustworthiness of the Hoosat Network.

Energy Efficiency and Sustainability

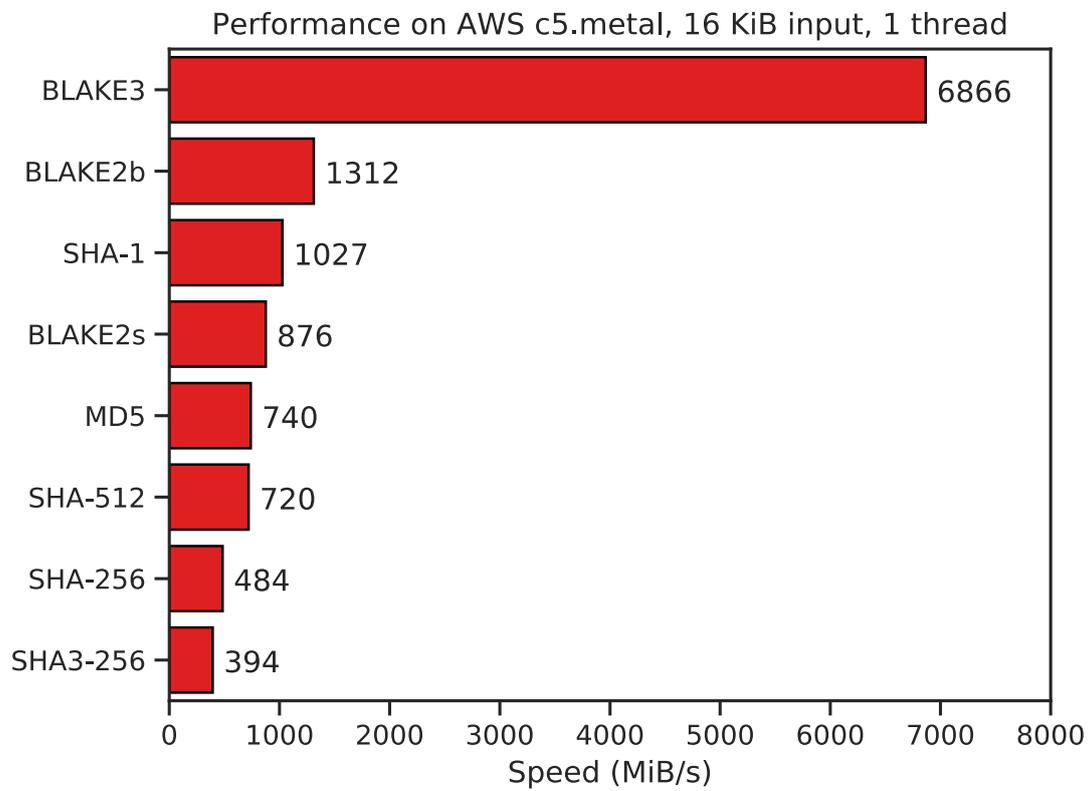
Blake3 shines not only in speed and security, but also in its commitment to the environment. Unlike some algorithms, Blake3 is ASIC-resistant, meaning it uses less energy per hash. This translates to greener mining practices, a crucial factor as sustainability climbs the global agenda. By choosing Blake3, the Hoosat Network minimizes its carbon footprint without sacrificing security or performance. This aligns perfectly with the project's commitment to a responsible and sustainable future.

Future-Proofing the Network

Blake3 stands out as the ideal hashing algorithm for the Hoosat Network. It's not just secure, it's built for the future. As the network scales and breaks new ground, Blake3's adaptability and scalability will ensure smooth operation. Fast transaction processing is crucial for any network. Blake3 excels here, allowing the Hoosat Network to handle growing transaction volumes without slowdowns. This paves the way for future advancements and a thriving ecosystem.

The selection of Blake3 wasn't taken lightly. It reflects a deep commitment to the core principles of blockchain technology: security, decentralization, and sustainability. This focus ensures a fair and inclusive network, resistant to centralized control and well-positioned for long-term success.

The chart below is an example Blake3 benchmark of 16 KiB inputs on Cascade Lake-SP 8275CL server CPU from 2019.



Source: <https://github.com/BLAKE3-team/BLAKE3>

Hoosat Network's Coin Supply and Distribution

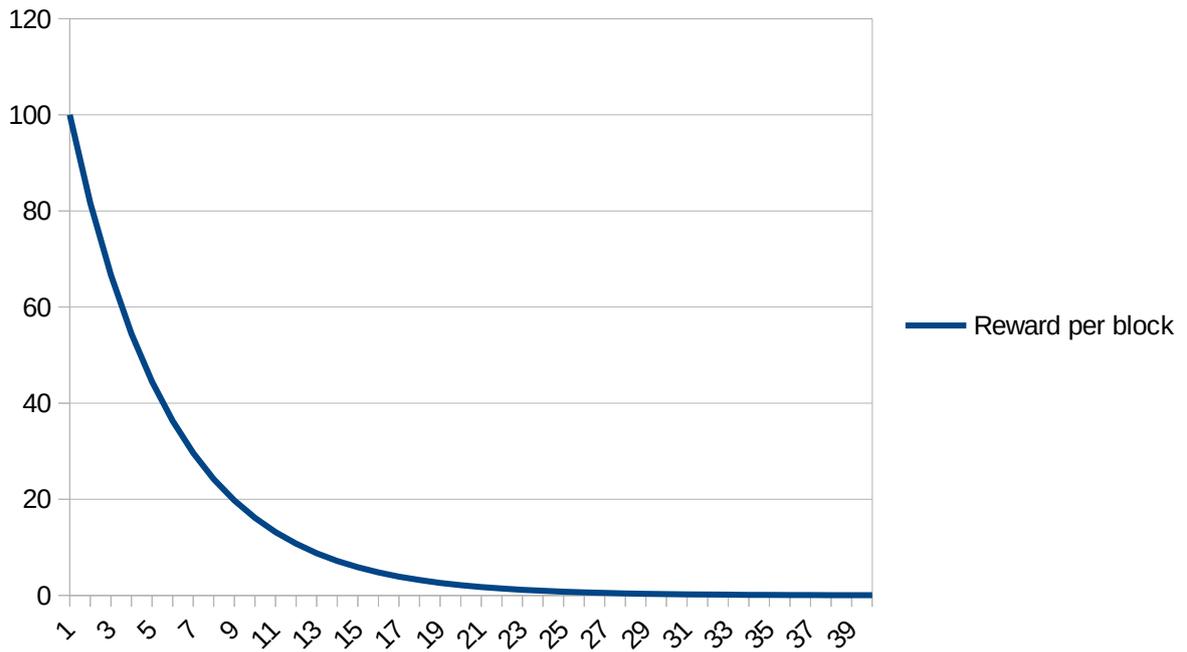
The Hoosat Network has a transparent and predictable monetary policy designed to ensure long-term sustainability. Here's a breakdown of the key points:

- **Total Coin Supply:** The maximum supply of Hoosat coins is capped at around 17,1 billion. This finite supply helps control inflation and maintain the value of the coin over time.
- **Fair Distribution:** There is 360 block pre-mining phase which means. Which equals 100,224,000 HTN. That is 0.58% of the potential max supply. The total max supply is 17,185,510,833.03 coins if we assume 1 block per second.
- **Locked Premine funds:** There is locking period of 20 million per year, which means the premined funds last at least 5 years. If the locking period is required to be broken it will be put on a community vote.
 - Premine wallet address:
hoosat:qzdz9t3j5pmmqwzj3htquk82kxj77uqdh47ucq23wv00evkxnff6sefjdr4
- **Regular Halving:** The block reward for mining new coins will be subsided every year. This process gradually reduces the rate at which new coins are introduced into the network, further contributing to coin scarcity and stability.
- **Long-Term Sustainability:** With a total subsidy cycle of over 65 years, the issuance of new coins will reach zero in 115 years, ensuring a predictable and sustainable long-term supply.
- **Blockchain launched:** The network was launched for public access 8.3.2024 14:00 UTC.

Block Rewards: Assuming a block production rate of 31,536,000 blocks per year, the block rewards will follow a predictable subsidy schedule. You can find more detailed information about the specific block reward schedule in the next page's table.

Years	Reward per block	Blocks mined
1	100	3153600000.00000
2	81.64965809	2574903617.52624
3	66.66666666	2102399999.78976
4	54.43310539	1716602411.57904
5	44.44444444	1401599999.85984
6	36.28873693	1144401607.82448
7	29.62962962	934399999.69632
8	24.19249128	762934405.00608
9	19.75308641	622933333.02576
10	16.12832752	508622936.67072
11	13.16872427	415288888.57872
12	10.75221834	339081957.57024
13	8.77914951	276859258.94736
14	7.16814556	226054638.38016
15	5.85276634	184572839.29824
16	4.77876371	150703092.35856
17	3.90184423	123048559.63728
18	3.18584247	100468728.13392
19	2.60122948	82032372.88128
20	2.12389498	66979152.08928
21	1.73415299	54688248.69264
22	1.41592998	44652767.84928
23	1.15610199	36458832.35664
24	0.94395332	29768511.89952
25	0.77073466	24305888.23776
26	0.62930221	19845674.49456
27	0.5138231	16203925.28160
28	0.41953481	13230449.76816
29	0.34254873	10802616.74928
30	0.27968987	8820299.74032
31	0.22836582	7201744.49952
32	0.18645991	5880199.72176
33	0.15224388	4801162.99968
34	0.12430661	3920133.25296
35	0.10149592	3200775.33312
36	0.08287107	2613422.06352
37	0.06766394	2133850.01184
38	0.05524738	1742281.37568
39	0.04510929	1422566.56944
40	0.03683158	1161520.70688

In this table you can see the progression of block reward deflation. Assuming block per second. **Subsidy(t) = BaseSubsidy / (1.5 ^ (t / CurveFactor))** is the mathematical representation of that deflation.



It takes about 5 years to halve the reward supply. Which gives decent time for people to join the network, making Hoosat Networks barrier to entry low. Still early adopters will benefit from coming in early.

Building a Brighter Future with the Hoosat Network

The Hoosat Network is more than just an ASIC-resistant fork of Kaspa; it's a vision for a future built on decentralization, security, and accessibility. By leveraging the innovative GhostDAG protocol and prioritizing GPU mining, the Hoosat Network empowers individuals and fosters a more inclusive and resilient blockchain ecosystem.

This whitepaper has outlined the core principles, technical foundations, and potential applications of the Hoosat Network. However, our work doesn't end here. We are committed to ongoing development and collaboration with the blockchain community.

Here are some exciting areas for future exploration:

- **Continuous Improvement of GhostDAG:** We will actively explore ways to further optimize the GhostDAG protocol, enhancing scalability and transaction processing efficiency.
- **Expansion of Smart Contract Functionality:** The Hoosat Network will continuously evolve to support a broader range of smart contract functionalities, fostering innovation and the development of next-generation decentralized applications.
- **Strengthening the Developer Community:** We are committed to fostering a vibrant developer community by providing resources, tools, and support to empower developers to build groundbreaking applications on the Hoosat Network.
- **Real-World Use Case Integration:** The Hoosat Network team actively seeks collaboration with businesses and organizations to explore and implement the network's capabilities in real-world applications across various industries.

We believe that the Hoosat Network has the potential to revolutionize how we interact with blockchain technology. By remaining true to our core values and fostering a collaborative environment, we can build a future where blockchain empowers individuals, fosters innovation, and creates a more secure and equitable digital landscape.

Join us on this journey!

The Hoosat Network welcomes you to participate in building a brighter future. We invite developers, miners, enthusiasts, and anyone who shares our vision to explore the possibilities and contribute to the network's growth.

Get involved through the following channels:

Discord: <https://discord.gg/SMDssVc3KD>

Together, we can unlock the full potential of blockchain technology and shape a more decentralized and secure future.