

KNS

Empower Your Web3 Identity with Decentralized Domains

1. Introduction



KASPA NAME SERVICE

1.1 Overview

Kaspa is a blockDAG network designed to solve the blockchain trilemma using a DAG (Directed Acyclic Graph) structure. This architecture allows for parallel block processing, offering high transaction throughput and security. As Kaspa evolves, its ecosystem needs functionalities and solutions to enhance user experience while leveraging its technical capabilities.

1.2 Purpose

The traditional blockchain addresses are long and complex, KNS (Kaspa Name Service) transforms them into easy-to-read domain names. This integration not only simplifies transactions but also reduces the risk of errors. KNS offers a more memorable, easy and secure way for users to manage their wallets.

1.3 Problem

As blockchain adoption grows, the need for an intuitive, decentralized naming service is a must. Traditional wallet addresses are error-prone and inconvenient for new users. The lack of a decentralized name service on Kaspa hinders mass adoption. To solve this, KNS will work with various sectors both within and outside the ecosystem to attract a wider audience.

2. Abstract

KNS will bring simplicity and security to Kaspas by replacing long, complex addresses with easy-to-read domain names. Unlike traditional name service, such as ENS (Ethereum Name Service), which rely on smart contracts, KNS utilizes inscription technology to achieve decentralized domain name registration.

KNS enables text inscription functionality to establish a decentralized name service. By implementing a robust indexing infrastructure, KNS ensures accurate and secure name-to-address mappings on Kaspas.

KNS's long-term vision includes the future implementation of smart contracts. Smart contracts will further expand KNS's functionalities, enhancing its capacity to serve the ecosystem as a whole.

3. The Problem

3.1 Human Error

Kaspa addresses, like traditional blockchain addresses, consist of random characters that are difficult to use. For example, sending a transaction to an address like “kaspa:qpsb....z4jg” can lead to mistakes, especially for new users. Errors in copying, typing, or sharing these complex addresses can result in failed transactions or funds being sent to the wrong address.

3.2 Lack of Smart Contract

The absence of smart contract on Kaspa presents another challenge. Other blockchains, like Ethereum, have leveraged smart contract to automate processes, enhance security, and enable new use cases like DeFi (Decentralized finance) and NFTs (Non-fungible tokens). Without this infrastructure, Kaspa is limited in its ability to support advanced use cases like dApps (Decentralized applications) or name services based on automated smart contracts. This restricts Kaspa’s competitive edge in attracting developers and enterprises that depend on such functionalities.

3.3 Mass Adoption

The challenges caused by complex addresses and the lack of smart contracts extend beyond technical issues. These challenges create significant barriers for new users, when address management is unintuitive and critical functionalities are lacking, new users will find it difficult to engage with Kaspa.

4. The Solution



4.1 Enhanced User Experience

- KNS simplifies the process of sending and receiving transactions on Kasper by replacing long and complex addresses such as “kaspa:qpsb....z4jg” with simple, easy-to-read names such as “trump.kas”
- Reducing the risk of errors caused by mistyped or incorrectly copied addresses, improves the overall experience for users.

4.2 Increased Security

- By reducing the complexity of wallet addresses, KNS lowers the chances of lost funds or failed transactions.
- The inscription technology ensures that names are securely linked to wallet addresses, creating a reliable method for address management.

4.3 Early Adoption With Inscription

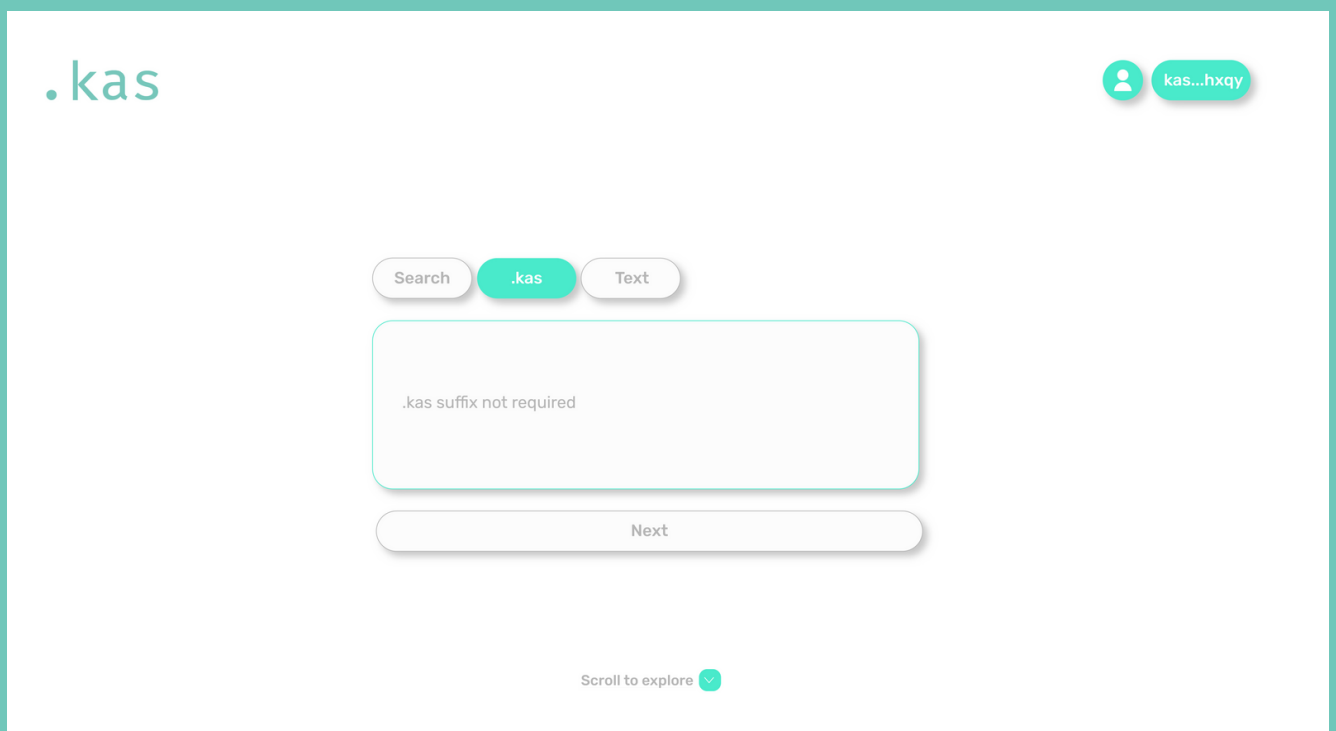
- KNS will initially enable text inscription functionality. As Kasper ecosystem evolves and smart contracts are introduced, KNS will enable features such as automation, advanced security measures, and dApp integration, providing more benefits to users, developers and builders.

5. Technical Architecture

5.1 Technical Architecture Overview

KNS is a decentralized name and text inscription system that allows users to inscribe unique domain names or arbitrary text on Kaspas using inscription technology. The technical architecture consists of four main components.

- a) KNS Inscription tools
- b) KNS Indexing infrastructure
- c) KNS Platform
- d) KNS Marketplace

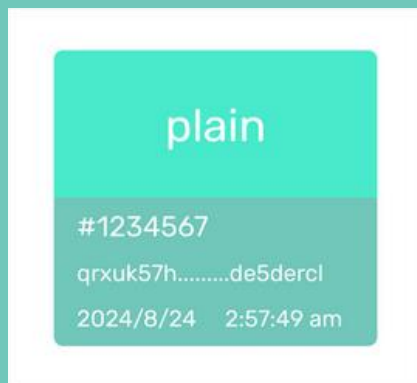


5.2 KNS Functionality

a) Text

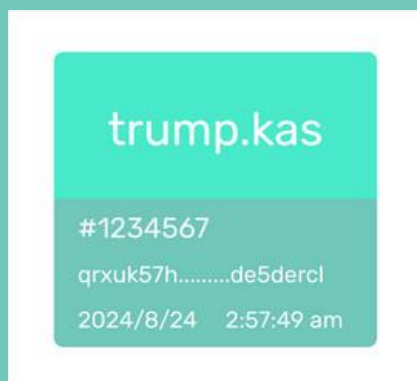
Inscription

- **Arbitrary Text:** Users can inscribe a string of arbitrary text onto Kaspas, enable on-chain messages and data storage.
- **Forever On-Chain:** Once inscribed, the text is forever recorded on Kaspas BlockDAG.



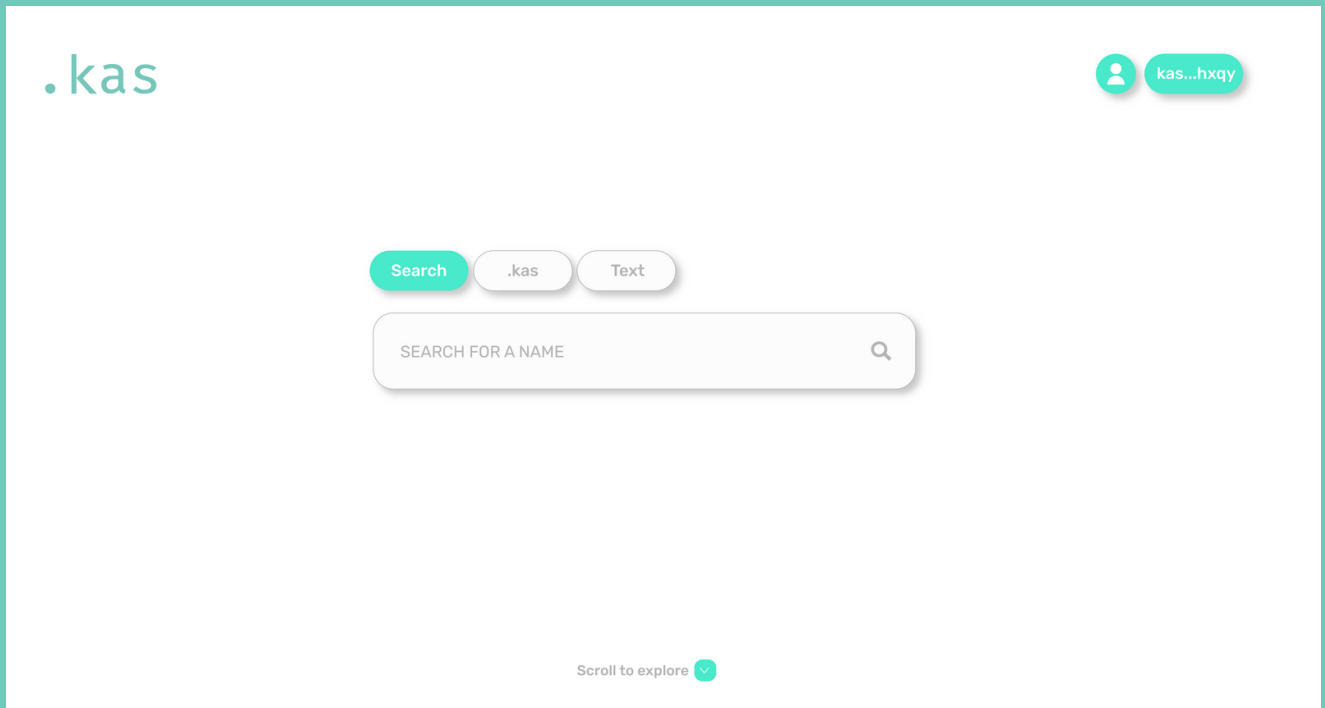
b) Domain Name Inscription

- **.kas Domains:** Users can create domain names ending with a kas suffix. For example “trump.kas”
- **Link to Wallet Addresses:** Once inscribed, the domain name inscription is linked to the user’s wallet address.



c) Search Function

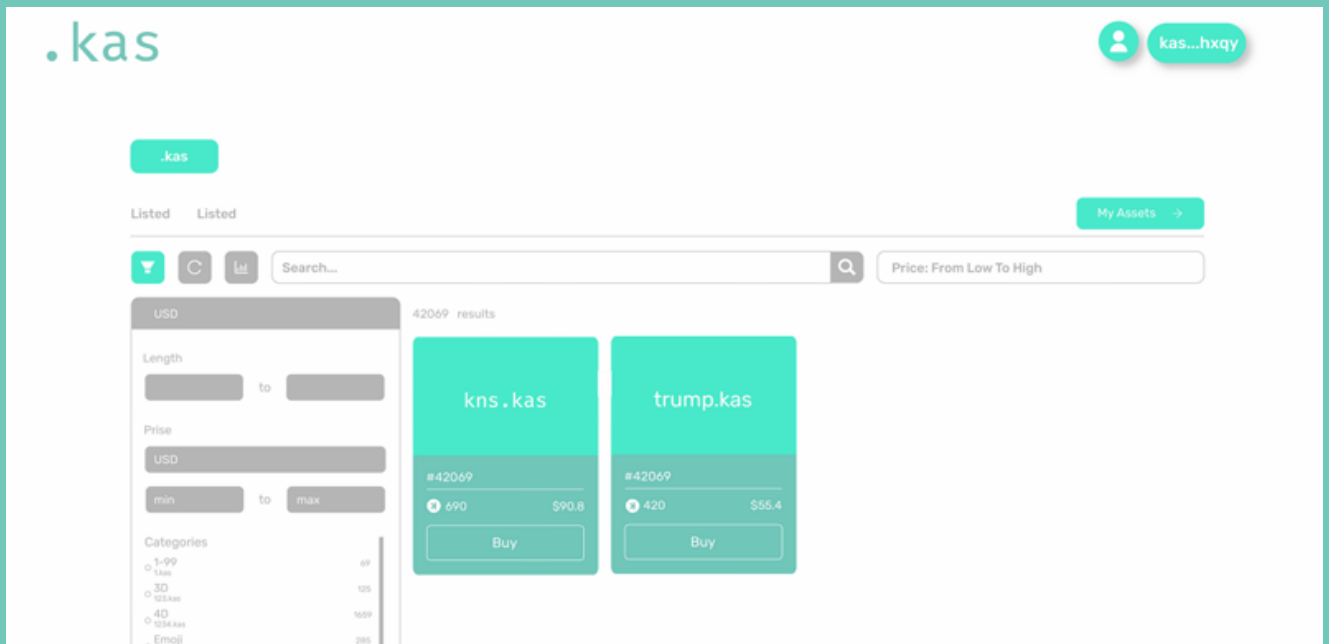
- **Availability:** Search function allows users to check the availability of their desired .kas names before inscribing.
- **First Come First Served:** The indexer only recognizes the first inscription of a given name, once a name has been inscribed, other users can still inscribe the same name, however, their .kas inscription will be invalid.



The screenshot shows the .kas search interface. At the top left is the .kas logo. At the top right is a user profile icon and a button labeled 'kas...hxqy'. In the center, there are three buttons: 'Search' (highlighted in orange), '.kas', and 'Text'. Below these is a search input field with the placeholder text 'SEARCH FOR A NAME' and a magnifying glass icon. At the bottom center, there is a link 'Scroll to explore' with a downward arrow icon.

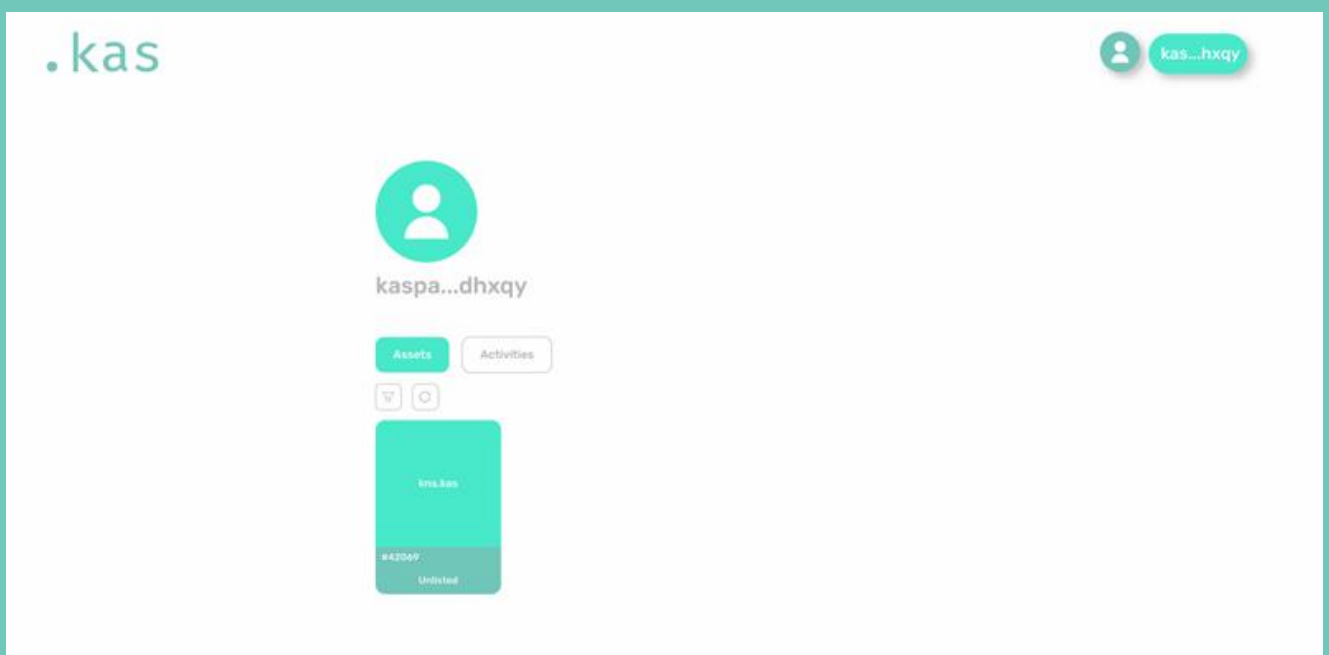
d) Marketplace

- **Trading:** Users can buy, sell and trade .kas domain names on KNS platform.
- **Listing and Pricing:** Users can list, set price and manage inscriptions.



e) Asset Management

- **Dashboard:** Allow users to manage inscription, view balance, scores and track transaction history.
- **Listing and Pricing:** Users can list, set price and manage inscriptions.



5.3 Inscription Process

Step 1: User Register Inscription

- **Initiation:** Users register inscriptions through KNS platform by entering their desired domain names or arbitrary texts.
- **No Renewal:** Once registered, each domain name inscription is permanent. There are no renewal or expiration fees.

Step 2: Processing Inscription

- **Transaction Broadcast:** For each domain name or text inscription, a transaction is generated and broadcast on Kaspas.
- **BlockDAG Confirmation:** Each inscription becomes an immutable record on Kaspas when the transaction is confirmed. Domain names or text inscriptions are then linked to the user's corresponding wallet address after indexing.

Step 4: Indexing & Resolution

- **Mapping:** The KNS indexer maps each .kas domain name inscription to its corresponding wallet address based on individual transactions.
- **Address Resolution:** When transactions are sent to a .kas domain name such as "*trump.kas*", the KNS indexer resolves it to the correct address holding the corresponding .kas domain.

5.4 Marketplace Process

KNS marketplace enables users to buy, sell and trade .kas domain names directly on the platform.

a) Listing Inscriptions

- **Create Listing:** Users can list their domain name for sale on the marketplace.
- **Listing Details:** Each listing includes the inscription details and the listing price.

b) Buying Inscriptions

- **Purchasing:** Users can select inscriptions and complete the purchase by paying the listed price.
- **Transaction: Confirmation:** Once the payment is confirmed, ownership of the inscriptions will be transferred to the buyers.

c) Ownership

- **Indexer updates:** The KNS indexer updates the mapping of the domain name to the new buyer's wallet address.
- **Ownership Transferred:** The new buyer can immediately use the newly purchased domain name for transactions.

5.5 Inscription Asset Management

a) Asset Management

- **Assets Display:** Users can view their KAS balance, inscriptions.
- **Scores:** Earn score from inscribing on KNS which will be used for future rewards.

b) Transaction History

- **Transaction Viewing:** Users can review their inscription history details (transaction ID, inscribed date, transfer details ...etc...)

c) Sales Management

- **Listing:** Users can list their inscription for sale or delist through the dashboard.

6. Use Cases

6.1 Personalized Payment Addresses

KNS allows users to replace long and complex Kasper addresses with easy-to-remember domain names. This significantly simplifies the process of sending and receiving payments, making it more user-friendly and reducing the risk of errors during transactions.

6.2 Digital Art Economy

KNS is not confined to simply replacing complicated wallet addresses with easy-to-read names. Our inscription technology will support image inscriptions, create a new digital art economy. By utilizing inscriptions on Kasper, KNS offers a cost-efficient on-chain solutions, allowing more users, creators and developers to participate on kasper.

6.3 Open-Source Indexer For dApp Integration

KNS provides an open-source indexer that can be utilized by other dApp. By leveraging KNS indexer, developers can integrate domain resolution directly into their dApps, allowing users to interact with KNS. The open-source indexer enables easier adoption by offering a transparent and decentralized infrastructure for developers and builders.

6.4 E-commerce and Payments

E-commerce platforms and online merchants can integrate KNS into their payment systems, enabling customers to use their .kas domains for quick, secure payments. Instead of manually copying and pasting wallet addresses, customers can simply enter their .kas domain during checkout.

6.5 Ownership

When someone inscribes a .kas domain, the ownership of that inscription belongs to the wallet that holds it. This inscription acts as a decentralized record, ensuring that the domain is unique and linked to a specific address, the wallet that holds the inscription resolves the name to its Kasper address, making it easy to use for transactions. If someone attempts to inscribe the same domain name that already exists, the second inscription becomes redundant, as ownership is established based on the "first come first served" principle.