

Unique ALX Technology

Technologies That Support The Algebraix Platform

The Algebraix business model is unique among blockchain companies. Facilitated by the ALX token, it forges a valuable symbiotic relationship between media consumers and content providers/advertisers. It is the only blockchain ad sector business based entirely on direct interactions between consumers and advertisers.

In the modern era, inventive business models often walk hand-in-hand with innovative technology. This is the case with the Algebraix multimedia platform. It is built on a blend of groundbreaking technologies, many of which are applications of Data Algebra, a new branch of applied mathematics that Algebraix invented.

The Personal Secure Vault and Wallet (PSV)

Algebraix is building a platform—in the sense that Google’s Android OS is a platform. Algebraix’s ALX platform provides a software environment for applications to be built that depend upon the monetization of personal data through the exchange of cryptocurrency. The first application, which we think of as the flagship application, is the consumer/advertiser application. Other applications which combine the use of personal data with ALX crypto payments could include social networks, news, recruiting, dating, gambling, gaming and so on.

The ALX platform is constructed with such varied applications in mind. To support these applications, it implements a series of features which we believe to be unique to the Algebraix platform. They are as follows:

- 1. Application Independence.** The PSV, the heart of the ALX platform, is specifically designed to be independent of the flagship content/advertising application that depends upon it. Its functions include: implementing multiple crypto wallets, providing a secure vault for personal data, carrying out token payments, implementing micropayments and managing a log for all user activity. The PSV provides a series of APIs to enable multiple other applications to simultaneously use it for these purposes.
- 2. Distributed Personal Data and Hardware Independence.** PSV data will reside on the user’s mobile device. If the data grows beyond the available space, it will, where possible, be stored locally on some other user-owned device. If not, it will be located on a cloud device owned by Algebraix. Because of this approach, ALX users can become ALX stakers and participate in “proof of stake” rewards. The PSV will run in multiple hardware environments so that it can reside on any mobile device and OS. It will be possible for copies of the PSV and its data to reside on multiple devices (for backup). A design goal is that the Algebraix network will reside primarily on user devices.
- 3. Self-Sovereign Identity.** The PSV embodies a self-sovereign identity that is established by reference to multiple personal data sources, e.g. personally entered data, credentials (driving license, passport, etc.), social network identities (Facebook, etc.), bank accounts, cryptocurrency exchanges, biometrics, behavioral data and so on. This data will be ingested and stored in the PSV using a mechanism that ensures it is never visible to Algebraix. Zero-knowledge proofs will be applied to validate the authenticity of the data. Because of this, individual users will be able to preserve their anonymity while interacting with other services via other blockchains or simply over the web. The platform will thus be able to guarantee user anonymity without constraining user capability.



[Click here to view our nine Data Algebra based patents](#)

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Data Algebra is the key to massive scalability in respect of data volumes and transaction workloads

ALGEBRAIX™



4. **Blockchain Interoperability.** The PSV manages blockchain interoperability. It will log the activities in any blockchain to which the user connects, both in respect of crypto payments and use of services. In situations where the foreign blockchain directly stores such data, which we expect to be the norm, the PSV may record the existence of the data and store the access details only. Where there is any doubt about the integrity and accessibility of such data, it will be stored. The PSV is designed to be logically centralized united but physically distributed.

The Contribution of Data Algebra

Data algebra plays a key role in many aspects of the PSV and other platform components. The PSV will accommodate flat files, structured data (as stored in traditional relational databases), data objects (as defined in so-called document databases), complex data relationships (as in graph databases) and semantic data. Personal data defined within the ALX platform will be self-defining in the sense of recording its origin, its lineage, its ownership and the usage permissions it grants or can grant. This is an extension to the way that data is normally defined, facilitated by data algebra.

There are three specific software areas where data algebra more than earns its living:

1. **Data Encryption.** Algebraically, data encryption and decryption correspond to frequent data transforms. Within the platform data will be encrypted when stored or transmitted and decrypted only when necessary for processing. This is general policy. All of this encryption activity is represented and processed algebraically.
2. **The PSV Metadata Catalog.** The ingesting and storing of personal data involves complex metadata activities. There is a need to keep an audit trail of the origin of all personal data, including source data metadata tags and any transforms applied to data for the sake of data standardization. This inevitably involves defining and maintaining an ontology for metadata coherence. All of this is represented and managed using data algebra.
3. **Query Performance and Data Virtualization.** Data algebra can deliver query acceleration in all data storage and database contexts through the algebraic caching of query results. This capability is implemented within the PSV and also within other components of the platform to provide an advanced data virtualization and caching capability. This functions across the network to minimize data transfers. Encryption and decryption have no impact on the performance acceleration that this delivers.

At a time determined by user population growth and transaction volumes, the Algebraix platform will migrate to a purpose-built high-speed blockchain. Because the platform components and the blockchain itself will leverage data algebra within its design and implementation, Algebraix will be able to handle the scalability challenge posed by hundreds of millions of concurrent users. Data algebra provides the key to massive scalability.

In Summary: A New Personal Data Platform

At the business level, Algebraix is delivering the next generation of personal data storage and control within a platform that enables individuals to monetize their data and preserve their anonymity. At the technology level Algebraix supports this with a series of unique technology innovations, most, but not all of which, are underwritten by the branch of applied mathematics that Algebraix itself invented.