

Rubix

All-purpose Ally in your Accelerated AI journey

The focus of legacy public block chain technologies , solutions and protocols built on them has been largely on creation and transfer of high value digital assets(be it crypto currencies or NFTs or securities) using various (computing) resource intensive cryptographic techniques such as Proof of Work or Proof of Stake.

The frictionless albeit not so secure digital onboarding and CLM processes meant a global TAM for service providers with a fairly low cost of acquisition given the community led nature of these innovations. The speculative behavior of the next wave of investors meant that the high total cost of infrequent transactions (across the value chain) were justified by the short/medium term increase in net asset value of the portfolio.

However there has not been any significant traction for such legacy public block chain players in the enterprise space and the reasons are not difficult to comprehend.

Enterprises and their technology partners have made tentative forays to adopt some of the data management solutions built on such permission less public block chains but very quickly realized that their data security and privacy is compromised by the monolithic and decentralized nature of the protocols and more importantly the high TCO of such solutions (built mostly on superficial/ aggregate data sharing templates) don't unlock any meaningful value for the collaborating parties.

The private, permissioned block chains do offer higher degree of data security and lower latency to help build immutable data records which can come fairly handy for audits and transparent traceability within the enterprise. However the lack of interoperability and absence of tokenization of such custom IT solutions meant that any collaboration use cases with programmable incentives and equitable value creation for all participants to drive enthusiastic adoption across multiple, heterogeneous and global stakeholders cannot be implemented at scale.

Case in point is the epic failure of 'TradeLens', the much touted industry consortium block chain use cases headlined by Maersk and built on IBM HyperLedger.

Introducing RUBIX

Rubix with Decentralized ID (DiD) at the core is designed to solve the vexatious block chain Trilemma (Scalability, Security and Decentralization) in the most cost efficient, flexible and easy to implement manner.

This enables enterprises and application providers to build faster-to-market, tokenized, broad spectrum data collaboration use cases on Rubix which makes available all tools in one stack

- DiDs,
- Settlement,
- Smart contracts ,
- Fungible tokens and Non fungible tokens
- Self-Custody wallet SDK for integration with existing Web2 mobile app

Advancing AI Aspirations.

A plethora of data collaboration use cases can be built leveraging the highly flexible and easy to implement proof chain mechanism and unique subnet architecture of Rubix with minimal incremental infrastructure and no change in existing data governance models of collaborating enterprises.

1. Secure and efficient leveraging of cross company AI investments.

“ Marketing team in your company is using vendor X to build the product profitability model and the finance team is using say vendor Y to create a cost optimization model. Usually the data inputs and model outputs tend to be in silos with little or no sharing of granular data as well enriched insights due to lack of proper gated and secure access mechanisms satisfying the data privacy /confidentiality policies of the company”

Provenance /Proof is accessible and verifiable across applications running on Rubix' ZK-enabled smart contracts. Tokenized access control of data enables selective and granular insight sharing between multiple trustless parties.

This open source Web3 standard supports a variety of web2 applications (developed using any programming language) to easily migrate to web3 with Rubix as the underlying distributed database.

2. AI model building on distributed data

“ Say two non-competing brands with similar brand values are looking to collaborate and run acquisition campaigns on each other’s first party data. Without an efficient, secure and scalable mechanism, the designated common AI model vendor has to create a privacy sandbox , use complex cryptographic techniques to ensure privacy protection of PII data to bring data of both the parties to a central location, then train the model on common /overlap set before creating look alike model cohorts in second party only data set suitable for respective brands acquisition objectives.”

The steps to achieve this by leveraging the Rubix stack would be.

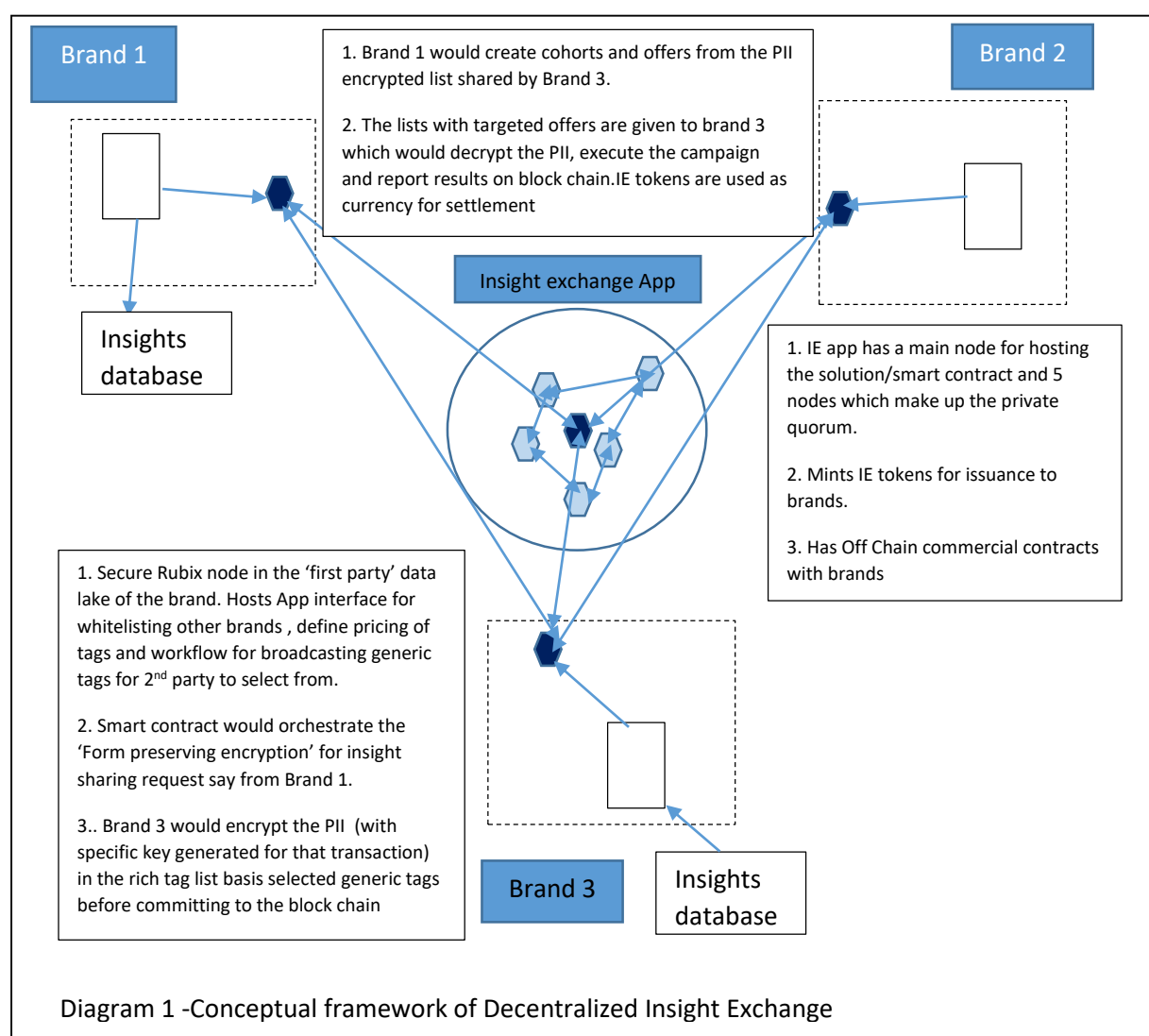
1. The privacy preserving infrastructure(PPI) solution of the model developer would
 - first create a Rubix node for orchestrating the federated learning use case. The smart contract would be hosted in this node.
 - Next would be creation of quorum nodes for achieving consensus in the subnet.
2. The two Collaborating brands create Rubix nodes in their infrastructure.
3. The collaborating brands exchange a common shared secret to hash the PII dimensions of the granular insight records.
4. The Rubix smart contract instantiated by the solution would provide mechanism to encrypt the data/file before committed to the block chain as the data token.
5. This data token can only be accessed by the PPI node using the encryption key. The deployment of the key would also be recorded on chain for audit purposes of the brands collaborating via the model developer.
6. The model developer would build and train the model on the privacy preserved combined /overlap data set accessed via the encryption keys provided by the collaborating parties.
7. Relevant output (on the 2nd party) arising of the lookalike model or similar techniques would be encrypted and written to the block chain with the key provided to the right audience for access.

3. Decentralized Insight Exchanges

“Brands collaborating with each other for marketing & advertising with their siloed data houses is perhaps the single biggest market opportunity that could not be captured so far due to the challenges of handling second party data on Web2 platforms. How do brands trust their critical PII data with others without privacy & monetization risks?”

With Rubix’s decentralized Web3 subnet architecture, enterprises can quickly launch multiple cross brand promotions with minimal additional infrastructure. More importantly, brands can retain full control & flexibility on "permissioned access" to data/insights which continue to be hosted on their secure Rubix subnets!

Rubix's smart contract functionality enables brands to establish predefined rules and agreements for data sharing. They facilitate secure and automated transactions, enforcing privacy policies and ensuring that data is shared only as specified by the participating parties. This reduces the risk of unauthorized access or misuse of sensitive PII data. See Diagram 1 for details



4. Secure and highly cost efficient monetization for Citizen Data Scientist.

“ Say you are a domain expert who created significant IP leveraging the recent explosion of AGI capabilities. You would like an easy to use , quick to implement Digital Rights Management solution with minimal number of value eroding intermediate hops between you and the user”

Unique access keys (essentially NFTs) governing the rules around usage of the model(number of times deployed, validity period) can be built by citizen data scientists to monetize their IP. Furthermore, ratings provided by users can be stored in an immutable manner to enable build credibility. With easy to use and quick to implement SDKs of Rubix and zero GAS fees, creators are assured of higher revenue retention relative to legacy, monolithic block chains.

5. Next Gen AI Concierge for Consumers in an Ownership Economy

“ An autonomous ,personal assistant in your device which protects private information but makes available(in a selective and fully controlled manner) your multi-dimensional credentials, reputation, history, likes , preferences, context, nuance , location , consent and any other insights which can help in making available relevant ,timely and highly personalized products and services without you having to do elaborate data/insight revealing search and discovery processes on centralized platforms for whom you are the PRODUCT !!”

User driven Personalization

Rubix peer-peer structure and granular level data tokenization enables users to selectively disclose context specific insights.

This means a user when searching for a new pair of shoes can share their running habits, BMI , location but not their PII or other unrelated data.

Incentivized Federated Learning

Existing data becomes insufficient with the growing complexity and the need for accurate AI models, there is an increasing need for data to capture a broader range of scenarios to improve model performance, and reduce bias.

Decentralized solutions built on Rubix can incentivize stakeholder participation in federated learning i.e. individuals or organizations can be rewarded for contributing their data or participating in the model's training process. Rubix Smart contracts can govern the rules and conditions for data contributions, model training, and rewards distribution ensuring transparency, fairness, and trust in the incentive mechanism.