Virtual Networks on blockchain-enabled RAN

The telecom network architecture across generations (2G-3G-4G-5G) continues to be highly centralized (Core network and RAN separation) which suits the equipment manufacturers but puts a limit on innovation possibilities.

With the emerging public block chain protocols like Rubix (Highly scalable subnet architecture and low TCO) it is possible to build a solution where the two primary functions performed by the core network layer can be decentralized without impacting user experience.

1. Authentication and Access Management.

Mutual authentication architecture to set up privacy-preserving end- to-end encrypted communication channels would be based on Zero Trust model leveraging Rubix Decentralized Id for all participating entities/devices without requiring third party certificate authority(CA) or public key infrastructure(PKI).

2. Independent Radio Access Network (RAN) operation and alternative billing on RAN

With Rubix public block chain enabled authentication and access management capabilities at the local RAN controller level the RAN can operate independent of the core network especially for internal voice and data traffic of the digital private network.

Leveraging the full potential of Rubix a plethora of distributed and decentralized on demand communication scenarios, such as D2D, IIoT, autonomous driving can be supported without adding more burden to limited fibre resources used by RAN-CN connection and that too with improved E2E latency and privacy.

With voice call or data session start and end times recorded on Rubix as data tokens against the respective DiD, there would be a tamper proof, immutable and easy to reconcile mechanism to be able to provide granular billing.

With possibilities of building other innovative and path breaking use cases around the principle of 'network slicing' or QOS linked 'spectrum switching' , this approach to digital private networks can open up new business models for domain specific solution providers and partners across the globe.

About 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 collaboration use cases on Rubix which makes available all necessary tools in a single stack viz.

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

Rubix public chain brings best of both public & permissioned chains

1. Rubix chain's native subnet architecture means enterprises can offer tokenized solutions without losing privacy & security while being able to gain from the tokenization & interoperability that comes with the public chain architecture. For example, an enterprise can run its own subnet with a chosen set of validators to meet the privacy, scale & security requirements.
2. Low costs. Most transactions on Rubix Chain can be done without gas fees, leading to significant cost savings. Further, enterprises can convert most of the existing infrastructure into block chain nodes, leading to minimal additional infrastructure costs.
3. Tamperproof data integrity and immutability of ledgers further buttressed by post quantum secure cryptography.
4. Native DID support. Only L1 public chain that has Decentralized Identity (DID) at the base. Building Identity & KYC solutions is easy & scalable with Rubix chain.
5. Parallelism: Native subnet & object oriented architecture means ability to achieve significant scalability with high partitional tolerance.