Bring Real-World Assets to Layer-2 Bitcoin: The Store-of-Value Chain for Safe-Yield Assets

May 2024
www.rwachain.space

Background

Following the bullish period of 2020-2022, the crypto market entered a winter phase, impacting GameFi, NFT, and DeFi which had experienced explosive growth. This correction aligned with increased inflation and a sluggish global economy, fostering a cautious atmosphere among investors, including those in the crypto space. This led to two noticeable trends:

Firstly, the rise of meme coins, characterized by crypto communities being fetched up by exaggerated promises of blockchain adoption, assessing most projects for what they will ultimately become - simply memes.

Secondly, the surge in real-world asset (RWA) investments[1]. The appeal lies in RWAs being tethered to tangible assets, promising to offer greater resilient yields against market fluctuations and market conditions.

It's noteworthy that major players like BlackRock[2] and other large institutions have made significant moves to embrace the RWA trend since early 2024.

It's clear that the convergence of economic factors and investor sentiments has reshaped the crypto landscape, with RWA emerging as a prominent theme in the post-2022-bull market era.

Real-World Asset Landscape

RWA encompasses various categories, with the most prominent naturally falling into the following, listed in, loosely, decreasing order of TVL[3]:

[1] https://twitter.com/rwachainxyz/status/1784263541350080806
[2] https://www.businesswire.com/news/home/20240320771318/en/
[3] https://twitter.com/rwachainxyz/status/1784622783106089445

Synthetic dollar, notably spearheaded by Ethena's USDe, provides the crypto-native, scalable solution for money achieved by delta-hedging Ethereum and Bitcoin collateral[4].

Securities, including but not limited to stocks, bonds. Tokenizing these assets facilitates greater efficiency, transparency, lower fees, and accessibility. Consider platforms like Robinhood which, despite offering fee-free trading, remain opaque layers that retail clients cannot fully penetrate. Transitioning to blockchain technology would grant retail investors full control and, more importantly, open up the potential for bundling or programming these assets.

High-value commodities, like gold and silver. Similar securities, yet gold/silver differs in that it is a physical object requiring highly-trusted custodian vaults when issuers or owners wish to bring to market for trading.

Real Estate: much less commoditized compared to securities or gold, as there is yet a Robinhood-like app where users can buy/sell properties with a single click. Real estate is highly regulated by local laws and countries, and properties aren't yet divided into chunks for co-ownership by multiple interested buyers. Tokenizing real estate would inherently address these challenges.

Micro-Investments: Similar to crowdfunding, many promising business ideas struggle to secure funding due to being too small for owners to finance themselves yet not large enough to attract attention from big funds. Tokenizing these investments would allow such opportunities to scale up quickly, benefiting both founders and investors.

Intellectual Properties (IPs): Millions of people create IPs daily, ranging from drawings, sketches, paintings, to books, poems, and ideas. While some become widely recognized without active advertisement, most are shelved away and eventually forgotten. Tokenizing IPs would provide a cheap and convenient way to bring them into the public eye, potentially fostering commercialization and nurturing a new ecosystem of curators, sources, auditors, and more, especially in a world where human creativity remains a key differentiator from AI.

[4] https://ethena-labs.gitbook.io/ethena-labs

Others classes include, but are not limited to, basic commodities (wheat/rice[5]), carbon credits[6], and social engagements/influences.

Despite being estimated between 16 trillion[7] (by 2023) and 867T trillion[8] (total) market potentials, current RWA market is still just a splash, and virtually no RWA projects exist on the Bitcoin network.

RWA Blockchain

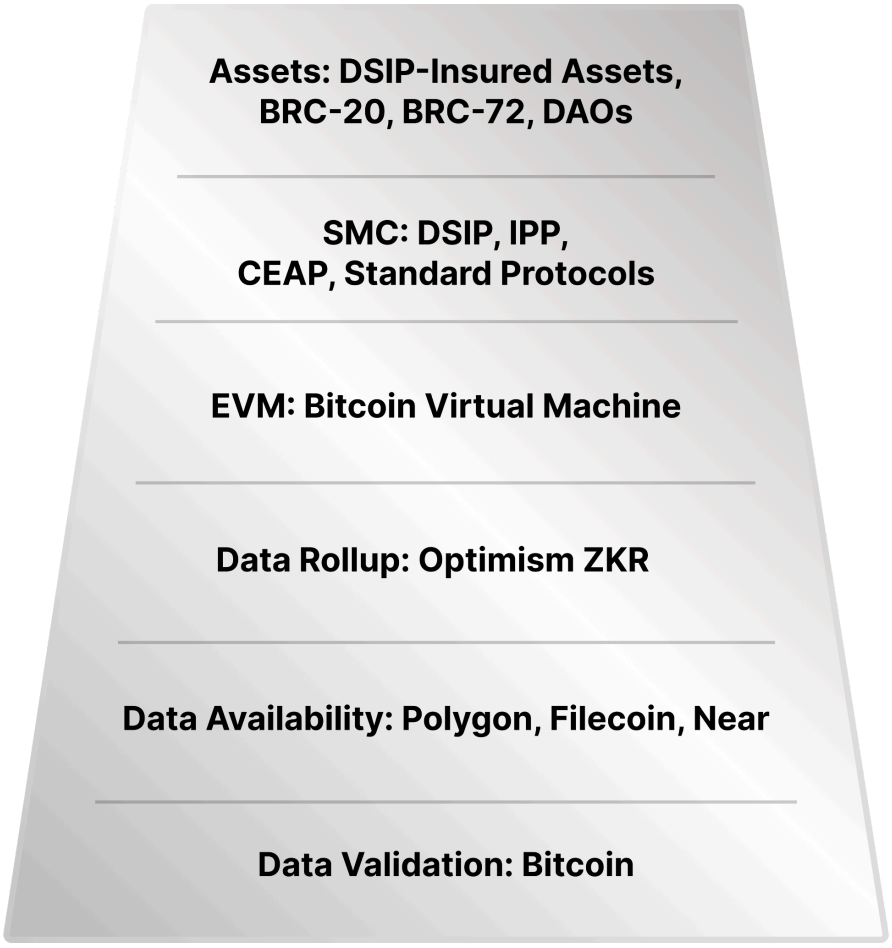
RWA Chain is a Bitcoin Layer-2 blockchain explicitly crafted to provide guarantees for physical-back assets and facilitate seamless onboardings of more real-world assets.

At the core of RWA Chain are integral protocols for staked-asset insurance, intellectual property management, and the conversion of physical assets into digital tokens—these are not add-ons, but fundamental aspects of the chain's architecture.

Furthermore, the chain's tokenomics set aside a dedicated insurance fund, inspired by FDIC, aimed at encouraging DeFi apps to offer assets with robust guarantees. This setup not only rewards apps to build solid reputations but also draws in DeFi investors seeking secure investments with attractive yields.

[5] https://landx.fi/
[6] https://toucan.earth/
[7] https://web-assets.bcg.com/1e/a2/5b5f2b7e42dfad2cb3113a291222/on-chain-asset-tokenization.pdf
[8] https://www3.weforum.org/docs/WEF_Digital_Assets_Distributed_Ledger_Technology_2021.pdf

Bitcoin Layer-2 Architecture



Data Validation relies on the secure, robust, and decentralized nature of the Bitcoin network.

Data Availability enables decoupling of transaction hash to be on Bitcoin and actual data to be stored on prominent and battle-tested platforms like Polygon, Filecoin, and Near.

Rollup employs two popular mechanisms–Optimism and ZKR.

EVM utilizes Bitcoin Virtual Machine, an EVM-compatible for smart contracts built on Bitcoin.

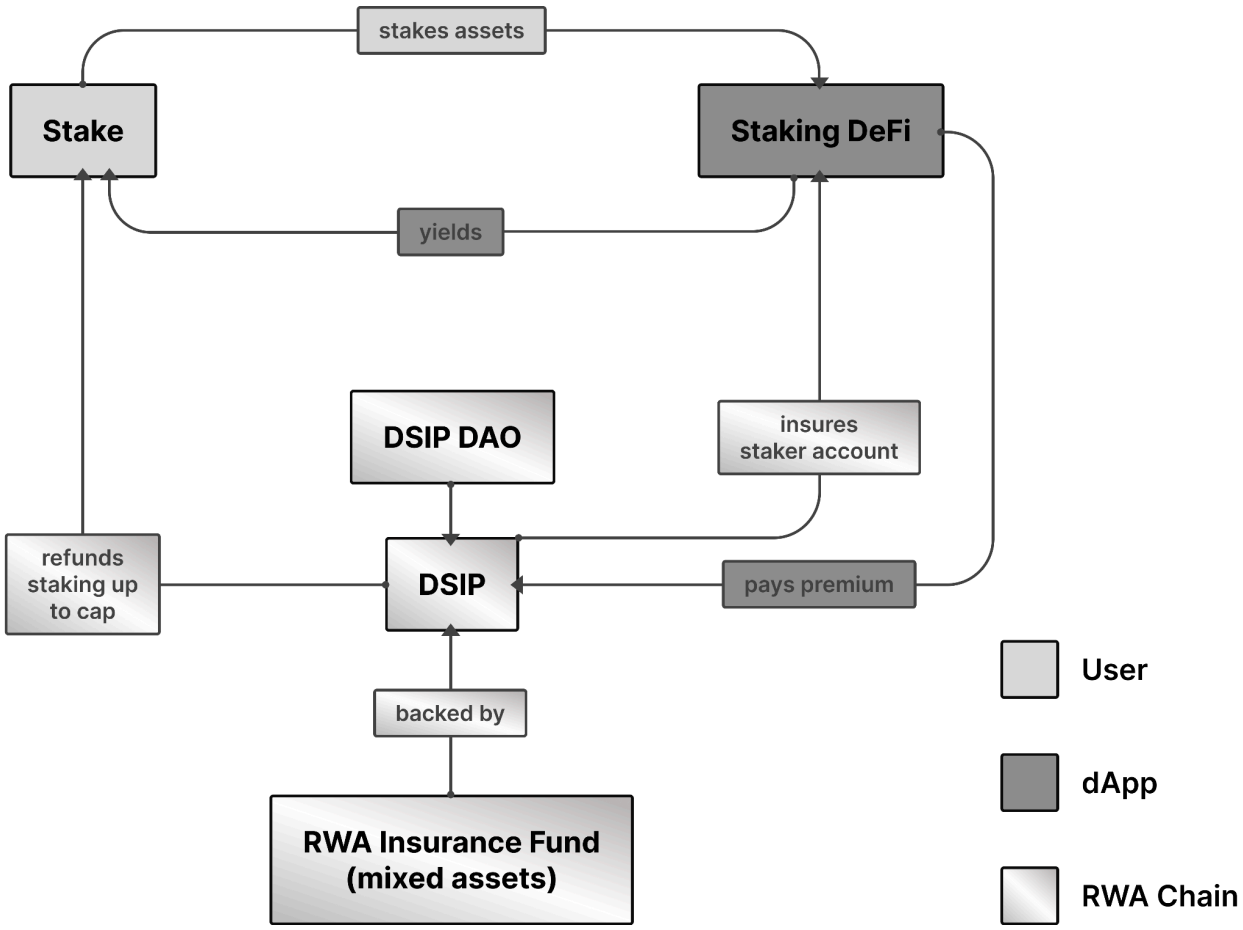
SMC not only offers all existing ERC standards, but it also equips with RWA-centric protocols like DSIP, IPP, and CEAP, addressing most challenging obstacles faced by RWA dApps.

Assets offer a new type of DSIP-insured assets that are endorsed and guaranteed by DSIP.

Decentralized Stake Insurance Protocol (DSIP)

The Federal Deposit Insurance Company (FDIC) model[9] has provided steadfast insurance protection for investors for nearly a century. DSIP draws loose inspiration from this model but offers greater flexibility and potential for evolution.

High-level View



[9] https://www.fdic.gov/resources/deposit-insurance/brochures/insured-deposits/index.html

Stakers - stake RWA-backed assets to DeFi that are certified by DSIP, which will offer guarantee that these assets will be refunded up to a cap in the event that the DeFi defaulted.

DeFi - to be certified by DSIP, it needs to pay a premium to DSIP for its issued assets. The insured assets can be verified by checking with DSIP protocols, providing an independent endorsement, increasing trusts for potential stakers.

DSIP Protocol - closely resembling the FDIC model, but executing autonomously by Smart Contracts. Its governance is controlled by a DSIP DAO, in setting key DISP's premium, refund cap, and asset compositions..

RWA Insurance Fund - this component is unique to RWA Chain and serves as a backup for DISP Protocol in case the premium collected by DSIP is short of covering the insured assets. The fund is officially endorsed and funded by RWA Chain, by funding from its native tokens. However, the composition of the fund's underlying assets will be regularly reviewed and restructured (mixing in other asset classes like real assets like gold/silver, fiat, stable coins, and others) to minimize the exposed risks of the funds for both good times and bad.

DSIP DAO - governance body of DSIP. Voting rights will be distributed to all parties, stakers, participating DeFi apps, DSIP, RWA Chain's token holders to ensure the policy decisions benefit the healths of stakers, DeFi, and DSIP. Few top items the DAO would vote on:

- **Premium** for DeFi to pay to be stamped with DSIP endorsement.
- **Refund cap** to be refunded to stakers in the time DeFi protocols' defaults.
- **Asset compositions** of RWA Insurance Fund to maximize the Fund's resilience in the time of turbulence. The Fund could include, but not limited to, $RBIT (native token of RWA Chain), stable coins, physical-backed assets like golds/silvers, or even fiat).

Protocols

The majority of existing decentralized insurance protocols operate on an opt-in basis, where users must pay for insurance separately. Only a handful are integrated directly into DeFi applications, and to our knowledge, very few, if any, are supported at the foundational level by the chain.

Here is the DSIP interface, demonstrating its foundational support and its interaction with various parties such as Stakers, DeFis, and DSIP DAO:

```
contract DSIP {
  // Functions for DeFi staking apps.
  //
  // Registers protocol to be endorsed by DSIP. Registered protocol
would
  // have to pay a premium to get and maintain DSIP's certified
  // endorsement.
  function registerProtocol()
  // Gets DISP's endorsement certification for a given protocol.
  function getProtocolEndorsementCertification()
  // Registers assets to be insured by DSIP.
  function registerAssets()
  // Gets certification statuses of given assets.
  function getInsursedAssetCertifications()

  // Functions for DSIP DAOs
  //
  // Marks risk level for a protocol.
  function markProtocolRiskLevels()
  // After DISP DAO votes to mark a protocol default, DISP is going
to:
  //   1. Let stakers claim refunds (up to cap) from insured assets.
  //   2. Transfer the ownership of the staked assets from claimed
stakers
  //      to DISP.
  function markProtocolDefault()
  // Sets refund caps for different asset classes and risk levels.
  function setRefundCaps()
  // Sets premium rates for different asset classes and DeFi
protocols.
  function setPremiumRates()

  // Functions for Stakers
  //
  // Claims refund for insured assets that were being defaulted, and
```

```
  // transfers the ownership of the staked assets to DSIP.
  function claimRefund()
}
```

Other Protocols

RWA asset classes are diverse, with new and novel ones are introducing every month, intellectual property[10] (IP), KOLs[11], social engagements[12], and many more. Standard protocols to support these are limited and momentum to add new RWA-centric protocols are frustratingly slow. Case in point, non-native support of NFTs' royalty resulted in the multi-year tug-of-war between NFT marketplaces trying out different workarounds and fighting for the best compromise (e.g. OpenSeas offered royalty enforcement[13], then dropped it out of fierce unhealthy competitions[14], and Blur lowered royalty fee to 0.5%, so low with the buyers would accept out of conveniency[15], cropping many creators's revenues[16]), and not striving for what is best for IP NFT's creators and owners.

Promising attempts to solve this royalty problem are under way, such as ERC-721C[17] to enforce loyalty payments (not merely a suggestion like ERC-2981[18]), delivering limited success, yet wide-adoption has yet occurred swift enough.

With a RWA-centric mindset, RWA Chain strives to look at the holistic view of each class of assets to identify the real bottlenecks and, when needed, introduce new protocols at the infrastructure level to enable universal support for the protocols across the dApps. Other than DISP protocol, here are few other examples:

---

[10] https://twitter.com/easymintxyz
[11] https://medium.com/@KoLToken/whitepaper-0b646d640c5f
[12] https://medium.com/meeds-dao/tokenized-incentives-and-community-engagement-c4e8034202aa
[13] https://cointelegraph.com/news/opensea-launches-new-on-chain-tool-to-enforce-nft-royalties
[14] https://www.theverge.com/2023/8/17/23836440/nft-creator-royalty-fees-are-dead-opensea-optional
[15] https://www.proactiveinvestors.co.uk/companies/news/1006795/blur-s-nft-marketplace-in-royalties-spat-with-opensea-1006795.html
[16] https://www.theblock.co/post/255274/how-blurs-low-royalty-fee-helped-decimate-yuga-labs-revenue
[17] https://medium.com/limit-break/introducing-erc721-c-a-new-standard-for-enforceable-on-chain-programmable-royalties-defaa127410
[18] https://eips.ethereum.org/EIPS/eip-2981

Intellectual Property Protocol (IPP) focuses on enforceable royalty, profit sharing, advances, and right management smart contracts. By adopting the tenets of decentralization, transparency, and tokenization, authors can regain agency over their intellectual property and establish stronger bonds with their audience, incentivizing the migration of more IPs on chains.

Content Encryption and Access Protocol (CEAP) addresses the need for certain IP assets in books, songs, and arts to remain exclusively distributed via select dApps, rather than being publicly exposed. CEAP protocol offers built-in features to encrypt content, keeping it hidden from the general public while providing individual, revocable keys to approved dApps. While some may debate its effectiveness due to security through obscurity[19], real-world examples demonstrate its success, particularly for emerging IPs.

Conclusion

The vast potential[20] of tokenized RWAs won't be limited to a handful of projects as we see now, but will encompass numerous projects across various regions, legal systems, chains, and asset classes.

A BTC-based RWA-focused chain is a strategic enhancement to the existing RWA ecosystem. We believe that our RWA-centric chain would expedite adoption and, in collaboration with other RWA initiatives, pioneer new standards and protocols to enhance trust and safety for both existing and new DeFi protocols, while also generating superior and safer yields for both seasoned and new web3 users.

[19] https://en.wikipedia.org/wiki/Security_through_obscurity
[20] https://www.21.co/research/the-state-of-tokenization