PROPOSAL NAME: ApeChain — Built using the fastest and cheapest ZK technology in production (zkSync's ZK Stack)

PROPOSAL CATEGORY: Brand Decision

TEAM DESCRIPTION:

Alex Gluchowski - Co-Founder & CEO, Matter Labs

Omar Azhar - Head of Business Development & Partnerships, Matter Labs

Marco Cora - SVP of Business & Operations, Matter Labs

Anthony Rose - SVP of Technology, Matter Labs

Michael Lee - SVP of Growth, Matter Labs

Rich Kim - Head of Media & Entertainment BD, Matter Labs

ABSTRACT:

The zkSync ecosystem is excited to support the ApeCoin community's interest in leveraging ZK technology to accelerate the Ape ecosystem and bring greater utility to ApeCoin, and specifically, doing so on the fastest and cheapest Ethereum-based Layer 2 network.

After discussions with ApeCoin community leaders and members, we understand that the DAO is looking to develop on a future-proof tech stack that's highly scalable, customizable, reliable, and with extremely low transaction fees.

We believe that ApeChain, built on ZK Stack, is the ideal solution for a vision of an ever-expanding Ape ecosystem — including Yuga Labs, BAYC/MAYC, ApeCoin, Otherside, Mocaverse and many others — to maintain its leadership position within the exponentially growing NFT space.

Most importantly, ApeCoin DAO will not just be adopting a highly performant technology; it will be embracing a growth ally that is focused on taking Ethereum mainstream and reaching a billion people. zkSync has consistently demonstrated its commitment to the success of its partners through comprehensive growth strategies, marketing support, and product expertise. Our collaboration with entities like Pudgy Penguins x Walmart, Government of Argentina (QuarkID), Clave, etc is a testament to our ability to deliver outcomes.

The ZK Stack is not just another modular solution for ApeChain; it's the same technology that powers the leading Ethereum Layer 2 rollup, zkSync Era, that has the fastest proof system in production, lowest gas fees, and highest number of users and transaction volume.

Data below as of December 12 (source: growthepie.xyz).

Cheapest L2 (Goal is to get to $0.01 very soon):

[

image

863×328 59.2 KB

](https://global.discourse-cdn.com/apecoin/original/2X/b/bf1a7e8ee25ad3e430a96866673e40949fd45937.jpeg)

Consistently the L2 with the highest number of users:

[

image

862×311 64.1 KB

](https://global.discourse-cdn.com/apecoin/original/2X/1/1b02797a81d0bdad4359187477cbab3dd6eeee7b.jpeg)

Consistently the L2 with the highest transaction volume:

[

image

864×341 64 KB

](https://global.discourse-cdn.com/apecoin/original/2X/1/123112a24cd1fed649aa22949634683a90ea5504.jpeg)

MOTIVATION:

What is zkSync all about?

Making Ethereum mainstream — zkSync is a future-proof technology that enables Ethereum to reach a billion people; in turn, boosting economic freedom and prosperity for all.

As one influential voice said, "Web3 is still waiting for the killer app. zkSync is Ethereum's last great hope to taking crypto mainstream to a billion users."

We firmly believe that realizing this vision is only achievable through the unwavering commitment to innovation and the audacious dreams of trailblazing crypto natives.

We intend to empower crypto natives through our technology, and go-to-market capabilities that enables these teams to achieve their ambitious goals. We're now starting to see this happen within the zkSync ecosystem in a big way with Pudgy Penguins collaboration with Walmart as our first partnership and foray into blending digital, physical, and gaming. We have many more partners joining the ecosystem through ZK Stack in the coming weeks/months — many will shock you!

The Ape community, a proven trailblazer and the largest NFT community, aligns perfectly with with our vision. As you venture into gaming and other verticals, the zkSync ecosystem stands as an ideal partner to bolster your ambitious growth plans. All ZK Stack chains are called hyperchains and all hyperchains come fully interoperable with each other. ApeChain and Pudgy Penguins building on zkSync will cement zkSync as the number 1 choice for blue-chip, Ethereum-based NFT projects. This will consolidate brands, liquidity and users to unprecedented collaboration opportunity without the threat of bridge hacks that can destroy brands and IP overnight.

BENEFIT TO APECOIN ECOSYSTEM:

By adopting the ZK Stack for ApeChain, ApeCoin DAO will benefit from:

- Your Dedicated Partner for Success:

Our commitment goes beyond the ZK Stack itself, encompassing a network of partners for whom growth and market success are paramount. We provide extensive support in development and go-to-market strategies, demonstrating that aligning with the ZK Stack equates to forging a partnership equally dedicated to your success. The ApeCoin DAO stands to reap the rewards of this thriving ecosystem and robust support framework. In the forthcoming weeks, we anticipate unveiling more face-melting announcements, and to offer you a sneak peek, here are some key highlights of our collaborative efforts:
* Pudgy Penguins x Walmart:

It's crucial to acknowledge the Pudgy team's role in their IP value increase, Walmart partnership, Pudgy World MMO launch, and achieving 10B social media views. We've facilitated Pudgy World's development and scaling on zkSync, the fastest and cheapest Ethereum rollup. Our collaborations have introduced new features, such as an in-game marketplace for Pudgy World's alpha version. Moreover, we leverage our AAA gaming and entertainment expertise to enhance their business strategies, with more exciting developments planned for 2024. These are unique capabilities we can bring to any community with similar size and passion. Read more [here](#) .

- Government of Argentina (QuarkID):

Open source identity platform that has been chosen by the City of Buenos Aires as the government's identity infrastructure for 15.4 million citizens — later rolling out across Argentina to over 45 million people. Personal identity documents and verifiable credentials from drivers licenses, real estate titles, and tax documents, to acting as the direct payment system between the government and its citizens. QuarkID has already secured expansion into two soon-to-be announced LATAM countries, which allows them to leverage ZK technology to empower 650 million people across Latin America. QuarkID now has the potential to be the biggest web3-enabled app and transition crypto to the mainstream. We also hired a seasoned web3 CMO stationed in Buenos Aires to work with the Argentine government and QuarkID team to successfully onboard tens of millions of users. Beyond growth strategies and activations, we also collaborate on R&D as we look to significantly expand the use cases that verifiable credentials can take on. Read more [here](#) .

- Clave Wallet:

Innovator behind EIP7212, Clave Wallet is reshaping user interactions with blockchain technology. They are at the forefront of secure enclave signing and next-gen crypto wallet development, complemented by a WAAS SDK for zkSync. At DevConnect in Istanbul, their home town, we showcased the potential of crypto payments through an immersive zkBazaar experience, highlighting Clave's biometrics-driven wallet experience. Read more [here](#) .

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- Free flow of users and liquidity (interoperability):

All ZK Stack Layer 2s (called hyperchains) come with our native messaging protocol that allows for fast, cheap, and trustless bridging from any one hyperchain to another. This is only possible because all hyperchains use the same zk prover and therefore are able to prove and verify transactions coming to and from any other hyperchain. We call this hyperbridging, inspired by web2 hyperlinks that allow you to move from one site to the next easily. This has a number of mind-blowing properties for builders, communities, and users: * For users, it means interacting with various applications and liquidity pools across hyperchains without the current cumbersome, costly, and hackable bridging processes. Our vision is to create a user experience so fluid it feels like navigating a singular, expansive ZK Universe. Picture the ease of swapping ETH for USDC on Uniswap via zkSync Era and then, in the same transaction, using that USDC to make a purchase on ApeChain, only to play an 11x11 mini Ape vs. Penguins football mini game in Pudgy World. Such intricate smart contract interactions across different hyperchains become feasible thanks to hyperbridging.

- Builders also benefit significantly by concentrating on developing a hyperchain-specific application while tapping into the extensive liquidity of certain tokens available on other hyperchains.

- The prospects for communities are nothing short of exhilarating. Picture the possibilities of direct collaboration between entities like Pudgy Penguins or even an entire nation-state, such as Argentina. Imagine coordinating events like tournaments that welcome participation from diverse communities. The potential for cross-community collaboration within the ZK Stack is extensive and diverse.Technical design and documentation [here](#).

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- Many choices for token value accrual via transaction fees:

We can support having either ApeCoin or a new ApeChain token becoming the native gas token. But this is just one option with ZK Stack. Thanks to our native-Account Abstraction (AA) you can also implement custom paymasters — not third-party controlled — which give the ApeChain many options for different forms of value accrual from transactions fees. Paymasters are smart contracts that any app can deploy that can be programmed to let users pay for gas in a variety of different ways: * Pay gas in any ERC-20 token such as ApeCoin, ApeChain token, or even stablecoins like DAI or USDC.

- Fully subsidize the gas for users so they don't even see it. This will be critical for onboarding tens of millions of non-crypto native users, as well as building games and metaverses on ApeChain.

- Token gate gas fees. You can create certain apps that give discounts for fully pay for the transaction fees if the user holds certain NFTs. This can create a number of options related to membership benefits or exclusive collaborations for

drops.Now you might say that this is no different than what any of the other stacks can do with EIP4337. The key difference here is that since AA is native to zkSync there is no requirement for any third party bundler service AND it supports both EoAs (99% of crypto users are EoAs like Metamask) as well as smart contract accounts. EIP4337 only supports smart contract accounts. This means you can keep your favorite EoA wallets and take advantage of paymasters functionality in apps. **Crypto is about cutting out the middleman and having sovereignty — only zkSync makes this possible!**How you pay for gas is not the only method to provide utility to a token. There is also the path towards a decentralized sequencer. A decentralized ApeChain means that token holders could stake their tokens as validators and earn yield from the network. Similar to how it works on Ethereum and other PoS or other decentralized networks.

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- Your choice of Ethereum and third party DA in the same chain (zkPorter):

Right now an operator of a ZK Stack hyperchain has the choice of either rollup mode or validium mode. In rollup mode you inherit the full security of Ethereum and use it as the DA layer, similar to any of the existing Layer 2 including zkSync Era. In validium mode you have the option of using a third party DA layer, such as Celestia, or your own private server. Why settle for just one option? In 2024 we plan to bring a new type of chain, a volition, that combines the best of both worlds to the market. You could have the option of a savings account (rollup mode) and a checking account (validium mode) on the same chain. You use your savings account for holding your valuable NFTs to ensure their security while using the checking account to play games where you require much cheaper fees. For builders you can build the DeFi apps on the rollup part of the chain and the gaming apps in the validium side of the chain.

- A commitment to being the cheapest in fees:

We have an extremely aggressive roadmap with a number of key upgrades coming in the short term that aim to bring transaction fees down. We're not content till fees are just $0.01 or below for everyone. For any community with gaming ambitions the fees have to be significantly lower and zkSync will get ApeChain there. Just this month we all saw the impact of the first of these key upgrades when we fully migrated to our new proof system, Boojum. [Within the first day the effects of Boojum have been clear.](#)

- Access to AAA Gaming and Entertainment Industry Experts:

As the ApeCoin community explore projects to build or migrate to ApeChain, similar to the Pudgy Penguins or Moonbirds teams, zkSync has AAA gaming and entertainment industry experts that can provide the DAO advise and connections to accelerate the development process.

KEY TERMS:

- Hyperbridges: Trustless, fast, and cheap cross-chain transaction systems that interconnect various hyperchains within the zkSync ecosystem. They enable fluid user experiences and intricate smart contract interactions across different hyperchains.

- Native Account Abstraction (AA): A feature allowing all accounts on the ZK Stack to be smart contracts, improving user experience and offering a variety of payment options and features. This includes Paymasters, new account signers, and enhanced security and recovery options.

- Data Availability (DA) Options: The Validium option within the ZK Stack allows operators to use third-party DA layers or private servers, with plans to expand these options to include zkPorter or Volition models, offering a choice between Ethereum security or separate DA services.

- Transaction Fee Structure: zkSync's proposal supports various methods of handling transaction fees, including using ApeCoin or a new ApeChain token as the native gas token, subsidizing gas for users, and offering discounts based on NFT ownership.

- Decentralized Sequencer: A future feature that would enable token holders to stake their tokens as validators, contributing to network security and earning yield from the network.

- Ecosystem Development Support: zkSync proposes extensive support for development and go-to-market strategies, including partnerships and collaborations within the zkSync ecosystem to boost the growth of ApeChain.

- Gaming and Entertainment Expertise: Access to AAA gaming and entertainment industry experts to assist in the development and gaming strategy for ApeChain.

- Licensing and Customization: The ZK Stack allows full autonomy for builders to customize and shape many aspects of their chains, with no licensing fees or revenue sharing requirements.

PLATFORMS AND TECHNOLOGIES:

The ZK Stack is a modular, open-source framework that is both free and designed to build custom hyperchains (ZK-powered L2s and L3s) based on the code of zkSync Era — the first hyperchain.

At its core, the ZK Stack offers two key features: sovereignty and seamless connectivity. The builders possess full rights to the code and enjoy full autonomy to customize and shape many aspects of their chains. Hyperchains operate independently but are interconnected by a network of hyperbridges, enabling the ideal interoperability landscape — trustless, fast, and cheap cross-chain transactions.

No matter how much adoption grows, ZK Stack brings the power of horizontal scalability to Ethereum. Just like adding more servers to address specific needs on the internet, a boundless amount of hyperchains can be created with minimal costs. ZK tech, combined with our state diffs and data-compression approaches unlocks a variety of important use cases like: Native AA, Flat fees regardless of gas price, Cheap oracles (or any high-frequency protocol) and Ultra low cost Validium accounts.

The hyperchain vision is based on enabling projects to create their own independent blockchain while still maintaining interoperability and composability. Building the ApeChain with the ZK Stack would allow the Ape ecosystem to expand and onboard the next wave of users whilst benefiting from the composable connection with other communities within the zkSync ecosystem in order to collectively boost growth efforts.

Highlights of the ZK Stack technology include:

- Maximum Performance:

zkSync's rollup technology has been proven to be the most performant L2 technology out there, and the best ZK tech by a wide margin. The recent upgrade to the Boojum proof system has decreased transaction costs to be the lowest of any L2, Optimistic or ZK. zkSync Era regularly averages 10+ TPS and has reached over 100+ TPS on zkSync Era multiple times in its short lifespan. Check the chain: https://www.growthepie.xyz/

- Interoperability & Hyperbridges:

Features that are still in development but soon to be live — hyperbridging refers to the ability for multiple hyperchains to achieve native interoperability by using the same proof system and shared bridge contract on L1.

- Future-proof through modular design:

The ZK Stack is deliberately modular so that it can support unique options for developers when defining data availability, sequencer characteristics, as well as proof generation.

- No Licensing Fees or Revenue Share:

ZK Stack is developed under fully permissive MIT/Apache open-source licenses, ensuring its availability at no cost. There is also no expectation of sharing sequencer revenue or fees with the broader zkSync ecosystem.

- Ethereum Alignment:

ZK Stack enables the building of Layer 2 networks secured by Ethereum, the largest ecosystem of NFT projects, builders, liquidity, and users. This is a key foundation of ApeChain following the passing of AIP-41

Additional Resources

- zkstack.io

- Matter Labs' Blog on ZK Stack

Steps to Implement & Timeline

Q2: Initial Consultation and Development strategy

- Begin with detailed discussions to align the ApeChain vision with the technical capabilities of ZK technology, focusing on scalability, customizability, reliability, and low transaction fees. This phase would include consultation with key team members from Matter Labs and a variety of service providers.

Q3: Development execution

- Develop a comprehensive network strategy tailored to the ApeCoin DAO's needs, incorporating the unique aspects of ZK Stack. Strategy formulation will be guided by zkSync's experience with other key partners and utilizing services from RAAS providers like Ankr, Zeeve, AltLayer, Luganodes, QuickNode as well as dev teams like LambdaClass and Moonsong Labs for development support.* Determine the integration path, focusing on the modular design of the ZK Stack. This phase will also include planning for the utilization of ZK Stack's various features like the cheapest fees strategy, AAA gaming and entertainment expertise, and potential collaborations within the zkSync ecosystem.

- Execute the development and integration of ApeChain on the ZK Stack, leveraging the technical expertise of Matter Labs' team. This phase includes the building of the ApeChain's hyperchain, ensuring seamless connectivity with other hyperchains, and implementing the planned features and functionalities whilst utilizing $3,000,000 USD committed to the ApeCoin Development Program.

Q4: Marketing, Promotion, and Launch

- Collaborate with Matter Labs' media and marketing team for crafting and executing a marketing strategy. This would involve leveraging the success stories of zkSync's previous collaborations, showcasing the unique benefits of ApeChain, and engaging the ApeCoin community.

- Upon completion of the integration, launch ApeChain as a high-performance, scalable, and cost-effective hyperchain. Highlight the benefits of reduced fees, high transaction volume capacity, and the security and efficiency of ZK technology.

Q4 and Beyond: Growth and Ongoing Development

- Post-launch, work continuously with the Matter Labs team and zkSync ecosystem to further develop and expand the ApeChain ecosystem. This includes strategizing for further growth, exploring new partnerships within the ZK Nation, and ongoing technical support to ensure the ApeChain remains at the forefront of technological advancements.

OVERALL COST

There are several types of costs to take into consideration i.e. cost of submitting data to L1, ecosystem tools and infra, sequencer infra and ops, and human resources.

The ZK Alliance can help and advise on each of these steps and breakdown costs to the ApeChain team:

- Rollup-as-a-service providers: Ankr, Zeeve, AltLayer, Luganodes, QuickNode

- Dev teams to support your development needs: LambdaClass and Moonsong Labs

- Block explorer: ZK Stack already comes built in with a free block explorer

- Oracles, Wallet SDKs, RPCs, and other infra: We have a plethora of partners that can be called upon to provide these services

How we will support the Ape community:

Like all our key partners we know that just offering you choices for such a difficult decision is not enough. Building your own chain is no easy feat and not everyone has the expertise for it. We will bring our strategic developer and RAAS partners so that you can focus on what you do best.

We saw the AIP Idea post, "ApeChain Developed with Arbitrum Technology with Growth Led by Horizen Labs"

, offering the following:

- Rollup-as-a-Service Provider (3 Years)

- ApeChain Security Council (3 Years)

- Block Explorer (all hyperchains already come with a built in block explorer so this isn't really a cost)

We'll match that.

We saw the AIP post, "ApeCoin DAO Development Program and Ecosystem Development Lead"

, offering the following:

- $3,000,000 USD for the establishment of an ApeCoin Development Program

We'll match that for it to be used towards go to market, ecosystem development, developer costs, and marketing / events.

In addition, an independent ecosystem funding program is being developed (expected very soon) for the benefit of zkSync and its participants, which will be empowered to determine how grants and tokens will be allocated to projects that are building on zkSync, including - potentially - APECOIN and the APEs. This process is expected to be completed within Q1 and more detailed information can be shared with this group at that time. We recognize the significance of transparency and look forward keeping everyone informed as to progress.

Providing ecosystem development funding is not enough. We offer the complete package as a strategic partner with the vision and the tech to make Ethereum mainstream. Let's figure out what the future for ApeCoin looks like and execute on that together.

The below is a new section to directly respond to the RFP Section 4:

Column 1

Column 2

Column 3

Column 4

Criteria

Answer

Scalability - Throughput

Real-life stress test showed a high of 189 TPS and an average of 150 TPS for 14 hours. Average around 10-20 TPS over the last 30 days. L2Beat. Blockworks made a note about this. We also have a new VM in the works coming out this year that can get us to 1000 TPS.

Scalability - Transaction fees

zkSync has the lowest transaction fees among L2s. Plan to reduce fees further, aiming to realize sub-1 cent fees for ZK Stack chains. Elastic batch sizes will increase the number of L2 transactions per L1 batch. Currently batch sizes around 500-1000 transactions, however we plan to significantly increase this in the near future.

Upgradeability & Extensibility - Path to upgrading the proposed blockchain

ZK Stack is deliberately future-proof through a modular design to allow support for unique options for developers when defining data availability, sequencer characteristics, as well as proof generation. One potential upgrade for ApeChain would be seamlessly upgrading from a zkRollup to zkPorter when that is released. All upgrades and extensions to zkSync Era and ZK Stack would be available to ApeChain as a ZK Stack hyperchain.

Security & Decentralization - Consensus Model

Will be live and public soon with the ability to use $APE token staking for sequencers.

Security & Decentralization - Block Validation

TBA

Security & Decentralization - Account Abstraction

All accounts are smart contracts on Era. This opens a wide variety of designs for developers to most importantly improve blockchain UX and build unique blockchain-augmented features for apps. These are features that users are accustomed to in Web2, but were previously only possible through custodial services in Web3. With native AA we are breaking out of this shell. Some examples include: Paymasters, new account signers by Clave, session keys, account admin controls for recovery and backups and/or a dead-man switch

Security & Decentralization - Data Availability

The Validium option will allow any operator of a hyperchain to use their own private server as a DA layer. This can be made configurable so that any external DA layer can be utilized, including Celestia or EigenDA. Worth noting that we are planning to expand DA options to include a design we call zkPorter (or if you are familiar, this is referred to as a Volition). In this DA model, applications and/or users have the choice to pick whether they want to pay for full ETH security on their data, or if they'd like it to be routed to a separately run zkPorter service. More on Data Availability can be found in this section of our documentation: [Hyperchains/Hyperscaling | Welcome to our Docs - All information you need about zkSync and ZK Stack](#)

Security & Decentralization - Finality

Single block finality is a key design decision in the ZK Stack decentralized sequencer and will be fully preserved within ApeChains's criteria. The details of this implementation are not publicly available, but will be accessible to support ApeChains' timeline with ongoing development stages.

Tokenomics - $APE

We can support having either ApeCoin or a new ApeChain token becoming the native gas token. But this is just one option with ZK Stack. Thanks to our native-Account Abstraction (AA) you can also implement custom paymasters — not third-party controlled — which give the ApeChain many options for different forms of value accrual from transactions fees. Pay gas in any ERC-20 token such as ApeCoin, ApeChain token, or even stablecoins like DAI or USDC. Fully subsidize the gas for users so they don't even see it. This will be critical for onboarding tens of millions of non-crypto native users, as well as building games and metaverses on ApeChain. Another method of providing utility to $APE, is the path towards a decentralized sequencer. A decentralized ApeChain means that token holders could stake their tokens as validators and earn yield from the network. Similar to Ethereum and other decentralized networks.

Ecosystem Development - Paymasters

Supports gas payments in various forms, like costum ERC-20 tokens, stablecoins, or even fully subsidized gas (gasless transactions). Utilizes Paymasters for flexible payment mechanisms. Gas in USDC Tutorial

Ecosystem Development - Custom Signers

With accounts supporting EIP1271, applications can use different signers to control accounts — for example, the Clave platform allows anyone to use the secure element of their mobile phone as the main signer for their public address.

Ecosystem Development - Composability

The hyperchain vision is based on enabling projects to create their own independent blockchain while still maintaining interoperability and composability. Building the ApeChain with the ZK Stack would allow the Ape ecosystem to expand and onboard the next wave of users whilst benefiting from the composable connection with other communities within the zkSync ecosystem in order to collectively boost growth efforts…

Ecosystem Development - Portability

Hyperchains operate independently but are interconnected by a network of hyperbridges, enabling the ideal interoperability landscape — trustless, fast, and cheap cross-chain transactions.

Ecosystem Development - Liquidity

We will have an incentive program for cross-ecosystem collaboration, which will also incentivize non-APE chain projects to use the shared bridge with APE. Users can interact with various applications and liquidity pools across hyperchains without the current non-intuitive and costly state of bridging. Our goal is to create a seamless user experience that feels like navigating a singular, expansive ZK Universe. Imagine the ability to swap ETH for USDC on Uniswap via zkSync Era and being able to use that USDC to make a purchase on ApeChain, all in one transaction

Ecosystem Development - Precompiles

Precompiles will be ready in no longer than a few weeks from the date of publishing this, which will greatly benefit the community and ecosystem.

Ecosystem Development - Smart Contract Languages

Support for modern languages through a compiler with LLVM.

Ecosystem Development - Funding

Available growth of ApeChain and ApeCoin ecosystem. Public goods funding should be available later through the foundation.

Gaming Support & Discussion - Architecture Optimization

ZK Stack is a modular framework that grants you full autonomy to tailor your blockchain product or protocol to your use case preference, displayed on our website here. Every hyperchain has the full ability to customize the build of their chain, which includes chain mode, Layer, Transaction Sequencing, Data Availability, Data Visibility, and Gas Token. For Gaming, ApeChain could, for example, choose Volition as a layer 2 with shared transaction sequencing and data availability management through a third party with public data visibility, gasless transactions with high performance, and low to no-cost transactions for an enhanced gaming experience for users.

Gaming Support & Discussion - NFT Support

Supports ERC1155, 721 and native AA for programmable asset-types.

Gaming Support & Discussion - EIPs for NFTs and Gaming

We have yet to publish any specific EIPs related to NFTs and Gaming

Gaming Support & Discussion - On-Chain Game Engines

We plan to eventually enable support for engines like Mud, Dojo, Paima game engine and others through our Type 2 zkEVM.

Gaming Support & Discussion - Cross-Platform Compatibility

Enabled by native messaging protocol in hyperbridges. Ability to play an 11x11 mini Ape vs. Penguins football game in Pudgy World. These complex smart contract interactions across different hyperchains are made possible by hyperbridging and allow for a unique unified gaming experience across various games and platforms.

Gaming Support & Discussion - User-Centric Design

Our user-centric design with hyperbridges, native account abstraction and use-cases like Paymasters and gasless transaction optionality create the intuitive interfaces and straightforward navigation that allow for the ease of use for gamers of all levels to use the hyperchains.

Licensing - Upgrades & Customization

At its core, the ZK Stack offers two key features: sovereignty and seamless connectivity. The builders possess full rights to the code and enjoy full autonomy to customize and shape many aspects of their chains.

Licensing - Future Spin-Outs

Possible to rebuild on a different tech stack.