V4 will entail a paradigm shift in the dYdX ecosystem from Ethereum (StarkEx) to COSMOs. This will mean that the present DYDX tokens will have to be transferred over to another blockchain and the community will need to adopt a ETH <> dYdX bridge in this process. To push this even further, we can even envision this canonical bridge to provide the infrastructure of choice for exchange between these 2 blockchains, and potentially other chains as well. Therefore, the interchain experience is a crucial area of discussion.

Rationale

1. Security Risks

Crypto bridges have been primary vectors of attacks given its nascency in the cross chain space. According to Chainalysis, attacks on bridges accounted for 69% of total funds stolen in 2022 as of Aug last year. Based on those consolidated by rekt, the more infamous ones include the $624M hack on Ronin, $611M hack on Poly Network and $586M on the BNB Bridge. Evidently, choosing a bridge, assessing its security is a critical area that should be made known and discussed by the community.

1. User Experience

Furthermore, different bridges entail different forms of the asset. A foreseeable future for dYdX involves multi-asset collateral structures which possibly entails using the coin as a margin for trading. Thus, a standardized form is important to position dYdX as the leading on-chain exchange.

An example would be that if we bridge ETH over to dYdX (COSMOs), this will appear as a wrapped version of it on the destination chain. For instance, ETH through the Gravity Bridge may become ETH1 while ETH through Wormhole becomes ETH2. Evidently, this fragments the liquidity on dYdX in the future, distorting the trading experience. Thus a single wrapped version of the token will be ideal to simplify the user experience.

1. Learning from other protocols

More recently, the Uniswap community had an intense discussion and closely watched vote, over which bridge to adopt, for deploying v3 on the BNB Chain. Likewise, Osmosis had a similar situation in voting for the canonical ETH bridge service provider. Evidently, these are important decisions that concern the protocol and community.

Bridges Today

Present ETH <> COSMOs bridges today include:

- Gravity Bridge (connects to Osmosis, Evmos, Stargaze etc)
- Wormhole (connects to Injective, Oasis, Terra)
- Axelar (connects to Osmosis, Juno etc)
- Nomad (connects to EVMOS etc)

And potentially others which may be in the works…

As a starter, Osmosis had previously created a similar post, comparing these bridges through concise summaries :The Great Osmosis Bridge-Off. Here is where we stand after the town… | by Stevie Woofwoof | Osmosis Community Updates | Medium

Edit: Uniswap has shared their bridge assessment report and recommended Wormhole, Axelar.Bridge Assessment Report

Factors of Consideration

1. Mechanism Design
2. Security
3. Model - How is the security model designed? Does it leverage security on the destination chain, source chain or both?
4. Audits - Has the source code been audited by known organizations?
5. Hacks - Has the bridge been hacked before? If so, what remedies were taken and have the funds been returned?
6. External vulnerabilities - Does the bridge rely heavily on external services (eg. Chainlink) and how are these actively minimized?
7. Consensus
8. Decentralization - is this bridge secured by a group of validators? A multi-sig or just 1 entity? Or is this just a single point of failure?

9. Malicious Actors - How does the bridge penalize malicious validators? What are some mitigation factors (eg. can the bridge be halted?)
10. Adoption Rate
11. TVL, Transaction Volume - are there known deployed contract addresses? Is this widely used?
12. Costs - What are the gas costs required to send transactions? Can these be minimized for better user experiences?
13. Others
14. Future plans - Can the bridge support NFT transfers (eg. Hedgies) over to dYdX (COSMOs)?
15. Team / Reputation - Is this supported by a known team?
16. Alignment with dYdX/IBC - Does the team have a vested interest in dYdX and the COSMOs ecosystem?

Conclusion

Fundamentally, these are some suggested points of consideration which the community should collectively discuss in choosing our bridge to transition seamlessly and securely to v4. I do hope that bridge providers and validators can also chip into the discussions for the community to make an informed decision. Ideally, this should end off with a snapshot in signaling the community's intention for our bridge of choice for the team to work on ahead of v4.

References:

Osmosis Vote (Choosing the Osmosis Canonical Ethereum Bridge)

Uniswap Vote (Deployment on BNB Chain)