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Composable Expansion Packs for Decentralized Organizations

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ABSTRACT

As blockchain technology continues to inspire new organizational designs, an opportunity arises to lay foundations and set precedents for new governance patterns.

Adding to the technical standards within the Ethereum ecosystem, Gnosis Guild has developed an open standard for decentralized organizations called Zodiac. Organizations can browse through a growing library of interoperable Zodiac tools and equip whichever modules they'd like in order to extend, modify, or complement existing practices.

By providing this optionality, the Zodiac protocol allows organizations to avoid rigid, monolithic designs and adopt composable governance systems based on specific community and operational needs. And because the Zodiac-compliant collection of tools are public goods, any organization can build upon a programmable Ethereum account to customize their governance system and evolve in parallel with ecosystem advancements.

We'll explore the barriers to adopting composable design systems, the solution that Gnosis Guild offers, and the potential future of composable governance enabled by Zodiac.

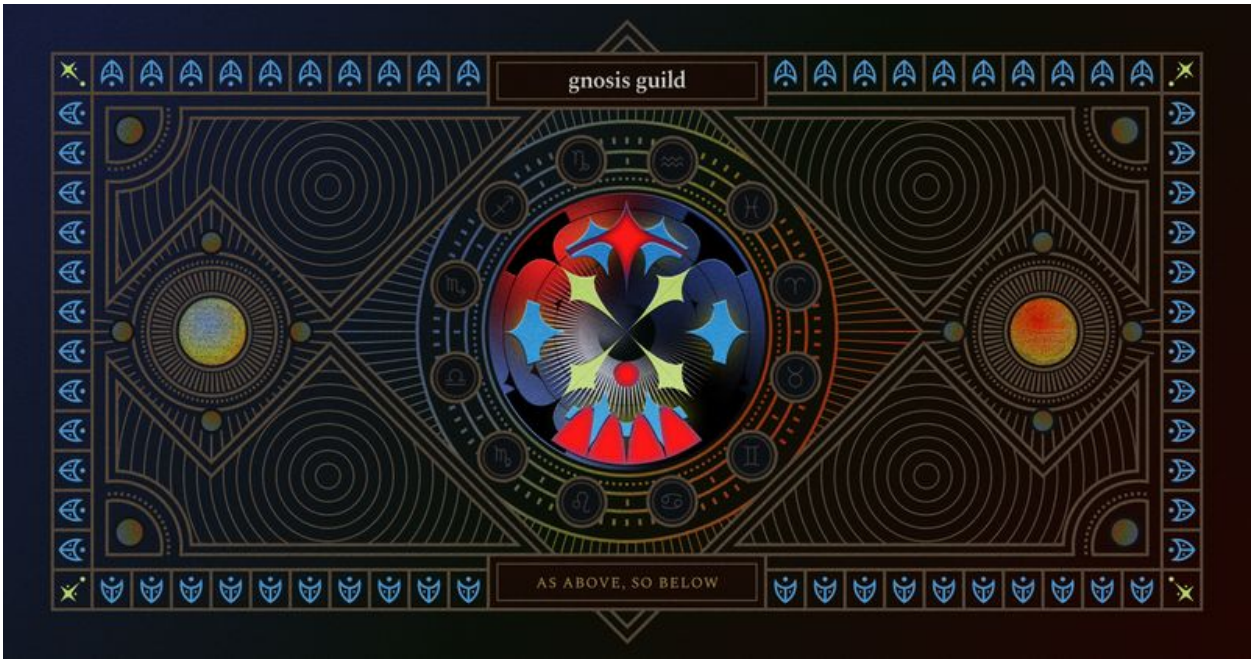
Decentralized Horizons

Perhaps the most significant design pattern to arise out of blockchain communities is the Decentralized Autonomous Organization (DAO). Unlike traditional corporations, DAOs are organizations governed transparently on blockchains and owned collectively by members uniting under a shared mission with a shared treasury. Despite a controversial start in 2016 — in which the first DAO was hacked just a month after an unprecedented fundraise — DAOs have since matured to become a dominant organizational structure for blockchain-native communities, focusing on everything from protocols (Uniswap) and investing (Fingerprints) to grants (Gitcoin) and culture (Friends With Benefits).

DAOs are evolving quickly, too. While early DAOs sought to provide infrastructure, "newer DAOs are organized around performing various tasks around a particular theme," writes Ethereum founder Vitalik Buterin. Of distinct note are DAOs created for specific, time-sensitive causes like ConstitutionDAO, which formed in 2021 to crowdfund for an original copy of the United States Constitution. These single-purpose DAOs reflect not only the speed at which communities with substantial treasuries can quickly form and just as quickly dissolve, but also the increasing necessity for adaptable mental models and flexible designs to fully benefit from the dynamic potential of networked communities and the corresponding iterations on governance design.

But cultural norms in the DAO ecosystem are far from standardized and the tooling even less so. While the ecosystem slowly begins to prioritize the composable affordances of decentralized networks, important questions remain: Which tools will DAOs use to support their governance systems, and what implications might they have on their design?

Transitional Allegiances

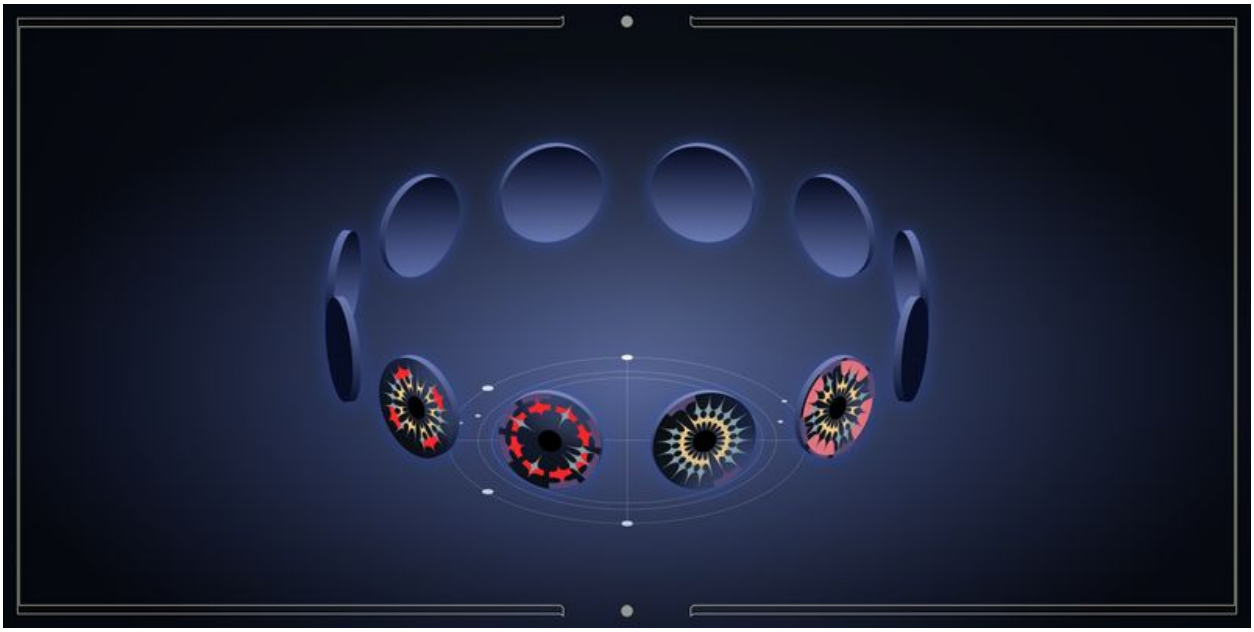


In this stage of decentralized governance design, technological innovation is outpacing the ability to ossify cultural standards and norms. Consequently, organizations may be tempted to seek one-size-fits-all solutions to consolidate tooling and centralize operational duties. This impulse could be seen as both a reflection of the nascency of DAO tooling and part of a necessary transition phase, in which decentralized organizations shed allegiances to legacy systems by initially using web3 tools that resemble the convenience and affordances of tools from the platform economy.

While these tools offer short-term software solutions, the constraints are readily apparent. By trading flexible governance designs for the conveniences of monolithic software, organizations risk platform lock-in at best and future incompatibility at worst. The resulting costs can be felt on both cultural and financial levels, from maintaining already-outdated templates to high migration costs away from opinionated frameworks. And like the legacy systems before them, monolithic systems are often closed to outside innovation, prompting cultural stagnation and technological obsolescence of various degrees.

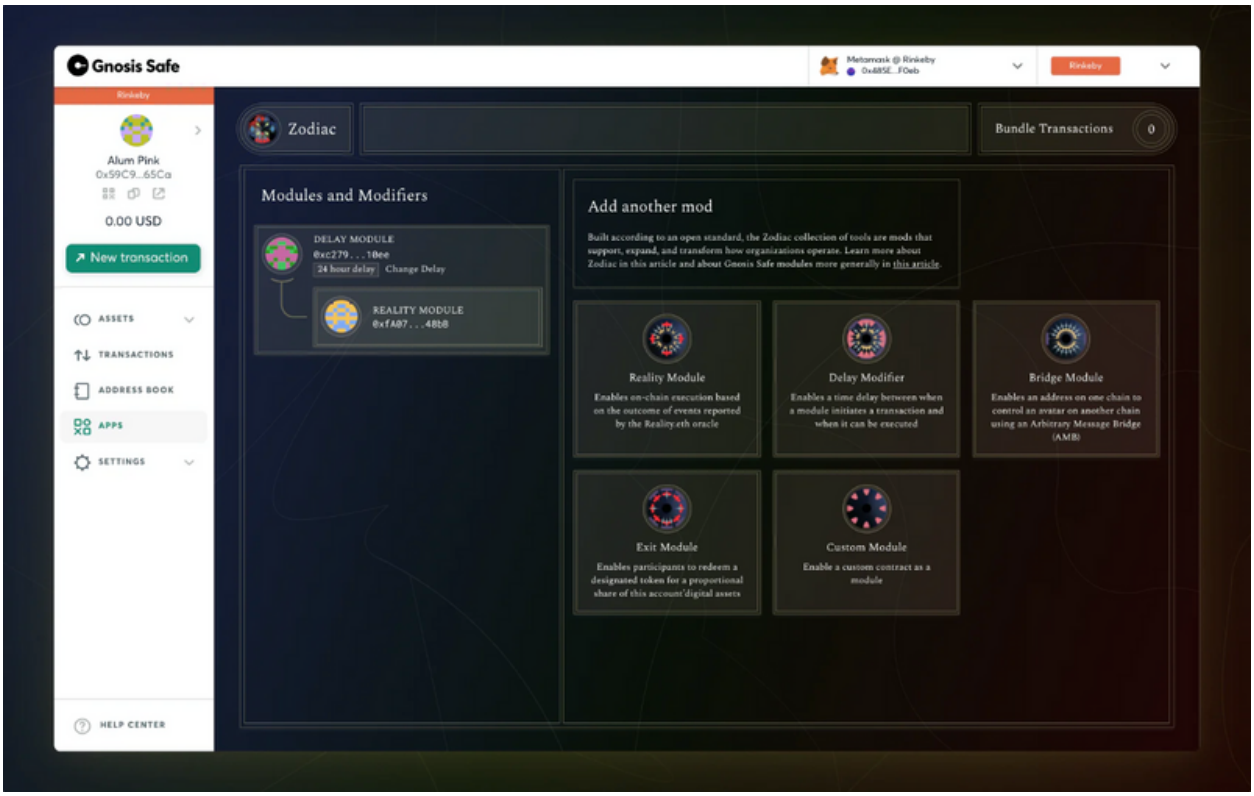
For an ecosystem driven in large part by affect, sensation, and movement, the pace at which cultural patterns form around monolithic design systems might not ever be adequate enough to leverage the potential of

blockchain technologies. To nurture the ecosystem's vibrancy and experimentation, what's needed is not necessarily more tools, but greater flexibility in the composition of tooling.



Introducing the Zodiac protocol

Zodiac is a composable solution released in September 2021 by Gnosis Guild, a core contributor to and keeper of the Zodiac open standard. The protocol establishes a standard for composable tools for programmable Ethereum accounts, such as Gnosis Safe, allowing organizations to customize governance systems to suit their needs and developers to build upon the standard to nurture evolving governance patterns. Because the protocol was inspired by the lack of composable governance tools in web3 tech stacks, core to Zodiac is the flexibility for operators to equip and combine as many or as few modules as they'd like from a growing library of tools.



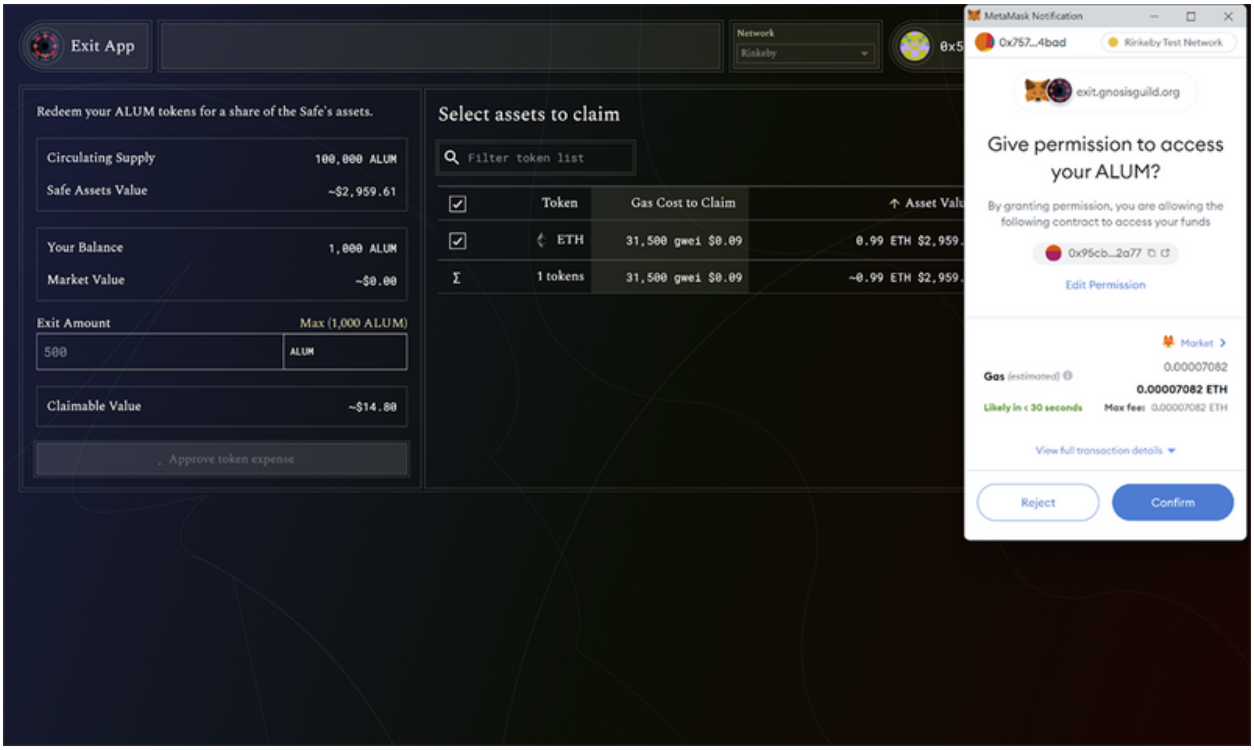
On a technical level, Zodiac separates the account taking actions/holding assets (known as the "avatar") and the authorization logic into two or more separate contracts. This standard defines the IAvatar interface, to be implemented by avatar contracts, while the authorization logic can be implemented with any combination of other tools (for example, DAO tools and frameworks).

By using the Zodiac standard to decouple account and control logic, individuals and organizations can:

1. Enable flexible, module-based control of programmable accounts
2. Easily switch between tools and frameworks without unnecessary overhead
3. Enable multiple control mechanisms in parallel
4. Enable cross-chain / cross-layer governance
5. Progressively decentralize their governance as their project and community matures

Together, these affordances allow organizations to develop composable governance systems that are flexible enough to evolve in response to community needs and resilient enough to accommodate progressive decentralization. And because Zodiac's implementations of core and factory logic are reusable, efficiency is optimized, innovation is compounded, and anyone can contribute to the protocol by submitting their module through a pull request.

The Zodiac Architecture



The architecture of Zodiac depends on four interoperable components: avatars, modules, modifiers, and guards. These components can be combined and recombined in a multitude of ways and contexts, allowing organizations to truly customize their governance systems. Brief descriptions of each component are outlined here:

- **Avatars** are programmable Ethereum accounts (e.g. a Gnosis Safe). Avatars are the address that holds balances, owns systems, executes transactions, is referenced externally, and ultimately represents the organization.
- **Modules** are contracts enabled by an avatar that implement some control logic.
- **Modifiers** are contracts that sit between modules and avatars to modify the module's behavior. For example, they might enforce a delay on all functions a module attempts to execute or limit the scope of transactions that can be initiated by the module.
- **Guards** are contracts that may be enabled on modules or modifiers and implement pre- or post-checks on each transaction executed by those modules or modifiers. This allows avatars to do things like limit the scope of addresses and functions that a module or modifier can call or ensure a certain state is never changed by a module or modifier.

Zodiac-Compliant Tools

While many Zodiac tools since its launch have been developed by Gnosis Guild, organizations like DAOhaus, Kolektivo, and TokenWalk have also taken advantage of Zodiac's reusable logic and open architecture to develop their own composable modules. The following are some of the most popular tools from Zodiac's expanding library:

- **Roles Modifier**: The Zodiac Roles Modifier allows avatars to enforce granular, role-based permissions for attached modules. Modules that have been granted a role are able to unilaterally make calls to any approved addresses, approved functions, and approved variables to which the role has access. Core benefits:
  - Create multiple roles and assign to addresses
  - Allow roles access to call, delegate call, and/or send to address
  - Scope which functions a role can call on a given address
  - Scope which parameters are allowed on a given function
- **Exit Module**: The Zodiac Exit Module allows members to redeem a designated token for a proportion of an avatar's (a Gnosis Safe or other web3 account's) digital assets. To incorporate this pattern, a DAO can equip the Exit Module to a programmable account and members can visit an app when they choose to exit. Core benefits:
  - Enables members to redeem tokens (ERC-20 and ERC-721) for a proportion of the DAO's digital assets
  - Allows for redemptions that are trustless and permissionless
  - Empowers DAO members to easily exit organizations for any reason
- **Delay Modifier**: The Zodiac Delay Modifier allows avatars (Safes and other web3 accounts) to enforce a time delay between when a module initiates a transaction and when it can be executed by an avatar. Core benefits:
  - Allows DAOs to control the amount of time needed to prepare for a proposal's changes before execution
  - Enables DAOs to level up security practices
  - Provides DAO members an opportunity to exit or fork before a proposal is executed

- **Reality Module**: The Zodiac Reality Module allows on-chain execution based on the outcome of events reported by the Reality.eth oracle. While built initially to execute Safe transactions according to Snapshot proposals, this module is framework agnostic. It can enable proposal execution from just about anywhere. Core benefits:
  - Brings the outcome of off-chain proposals on-chain
  - Transforms a multisig account into decentralized community treasury
  - Empowers community members who aren’t signers on a multisig to execute transactions

- **Bridge Module**: The Zodiac Bridge Module allows an address on one chain to control an avatar (a Safe or other web3 account) on another chain using an Arbitrary Message Bridge (AMB). This enables a DAO on one chain to control assets and interact with systems like a Safe on a different chain. Core benefits:

- Enables a DAO to control assets on multiple EVM chains
- Extends a DAO's reach beyond the network to which their decision-making mechanisms are deployed
- Allows a DAO to find consensus on a chain with lower transaction fees while managing funds on a chain with the greater network effects

Conclusion

It's still early for composable governance. As blockchain-based ecosystems continue evolving, composable tools will help connect platforms, protocols, and chains. But it will also create space for their relational possibilities. For decentralized organizations, this opportunity may very well find its most impactful expression in composable governance systems. Gnosis Guild will assist these efforts by ensuring the Zodiac protocol not only increases interoperability and deepens integrations, but also remains a composability-focused public good that works with any governance system.

