

Anoma Applications

Apriori - DCN Workshop 2023

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Talk Overview

- Part 1 - What is an Application?
- Part 2 - What is Anoma?
- Part 3 - Anoma Applications

Part 1: Applications

What is an application?



Source: Dalle-Vang Gogh Basquiat

Definition

Source: Wikipedia

- An **application** is a computer program designed to carry out a specific task other than one relating to the operation of the computer itself, typically to be used by end-users;
 - word processors,
 - media players,
 - and accounting software.

Web 2 Applications

- Examples
 - Social - X (nee-Twitter), Facebook, Reddit
 - Fintech - Robinhood, CashApp, SoFi
 - Logistics & Transport - Uber, Airbnb, Expedia
 - Consumer Discretionary - Amazon, Etsy, StockX
 - Storage - Google Drive, DropBox, iCloud
 - Personal Assistants - ChatGPT , Google Bard, Hugging Chat
 - Digital Media - Youtube, Spotify, Netflix

Web 2 application limitations

- High switching costs
- Little to no privacy
- Censorship compliance
- Highly Centralized
- Rent-seeking behavior

Affordances

- James Gibson coined “affordance” in 1977 - **all action possibilities with an object based on users’ physical capabilities**
 - Don Norman later (1988) revised the term appending
 - users’ physical *and perceptual capabilities, goals and past experiences.*
- > Affordances are all about the relationship between the agent and the object

Web 3 Applications

- Examples
 - DeFi - Uniswap, dydx, Aave, etc....
 - Collectables - Open Sea, Blur, Magic Eden
 - Storage - IPFS, Filecoin, Arweave
 - Infrastructure - Liquid Staking, Bridging, Orderflow auctions
 - Games - Dark Forest, Axie Infinity, DeFi Kingdoms
 - Social - Farcaster, Lens, Friend-tech
 - Public Goods Funding - Gitcoin, Optimism, Namada

Favorable Properties

- Safety - nothing Bad happens - no double spends
- Liveness - something good eventually happens - Ledger keeps growing
- Censorship Resistance - can always write to the ledger if it grows
- Permissionless - anyone can use or operate

Limitations of Web 3

- High Cost for users and developers
 - Security vulnerabilities
 - Limited Composability
 - Best UX requires trust
 - High onboarding costs
 - Isolation
- > What does this thing even do?

Part 2: What is Anoma?



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Part 2: Outline

- Intents
 - What are intents?
- Anoma
 - the Network
 - the Protocol
 - affordances

What are Intents?

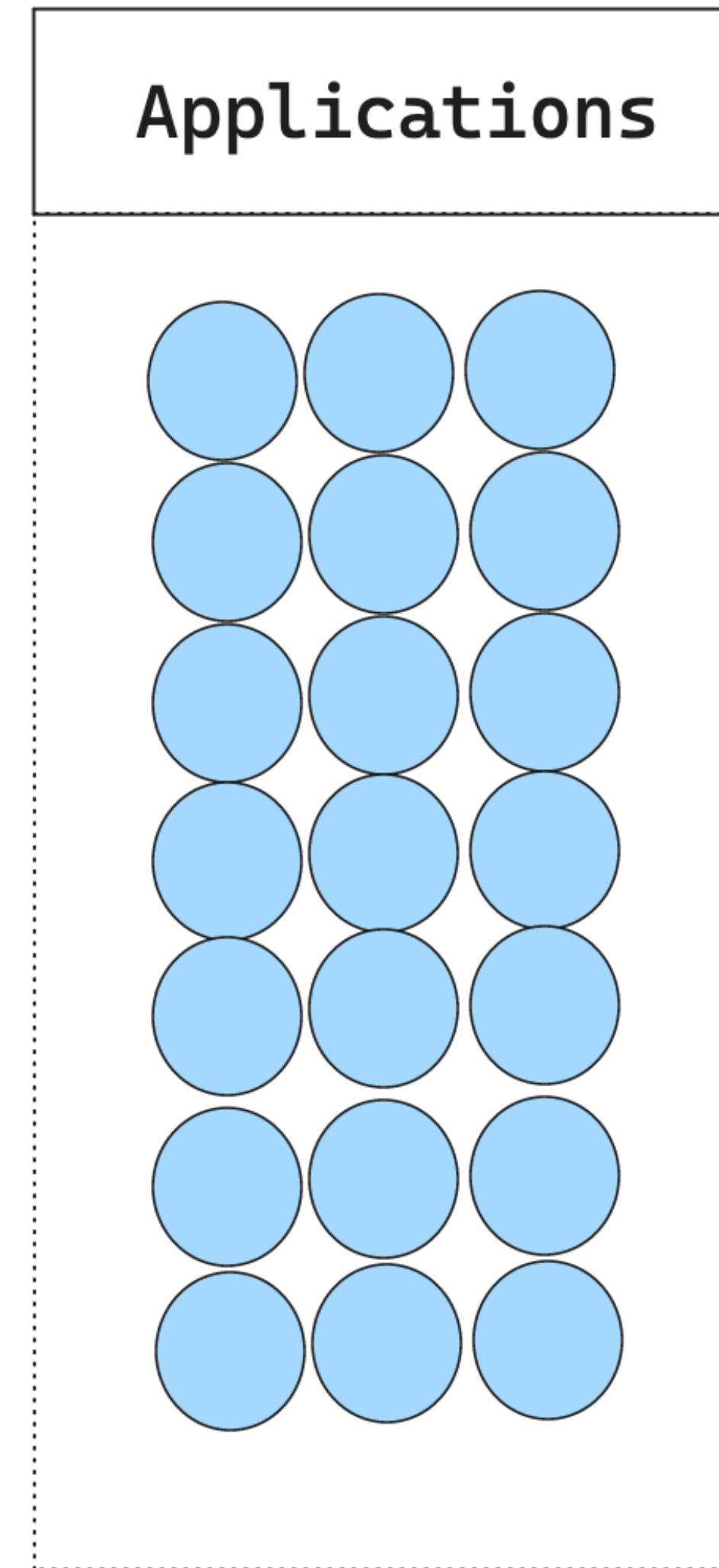
- An *intent* is a message sent by a user describing a preferred state of the system
- Intents allow users to express what they want without having to care about the execution path
- Swap & Bridge Example
 - TX - Approve -> Swap -> Configure wallet -> Approve -> Bridge
 - Intent - I want 10 Cat coins on Chain B for the balance in my account

Anoma

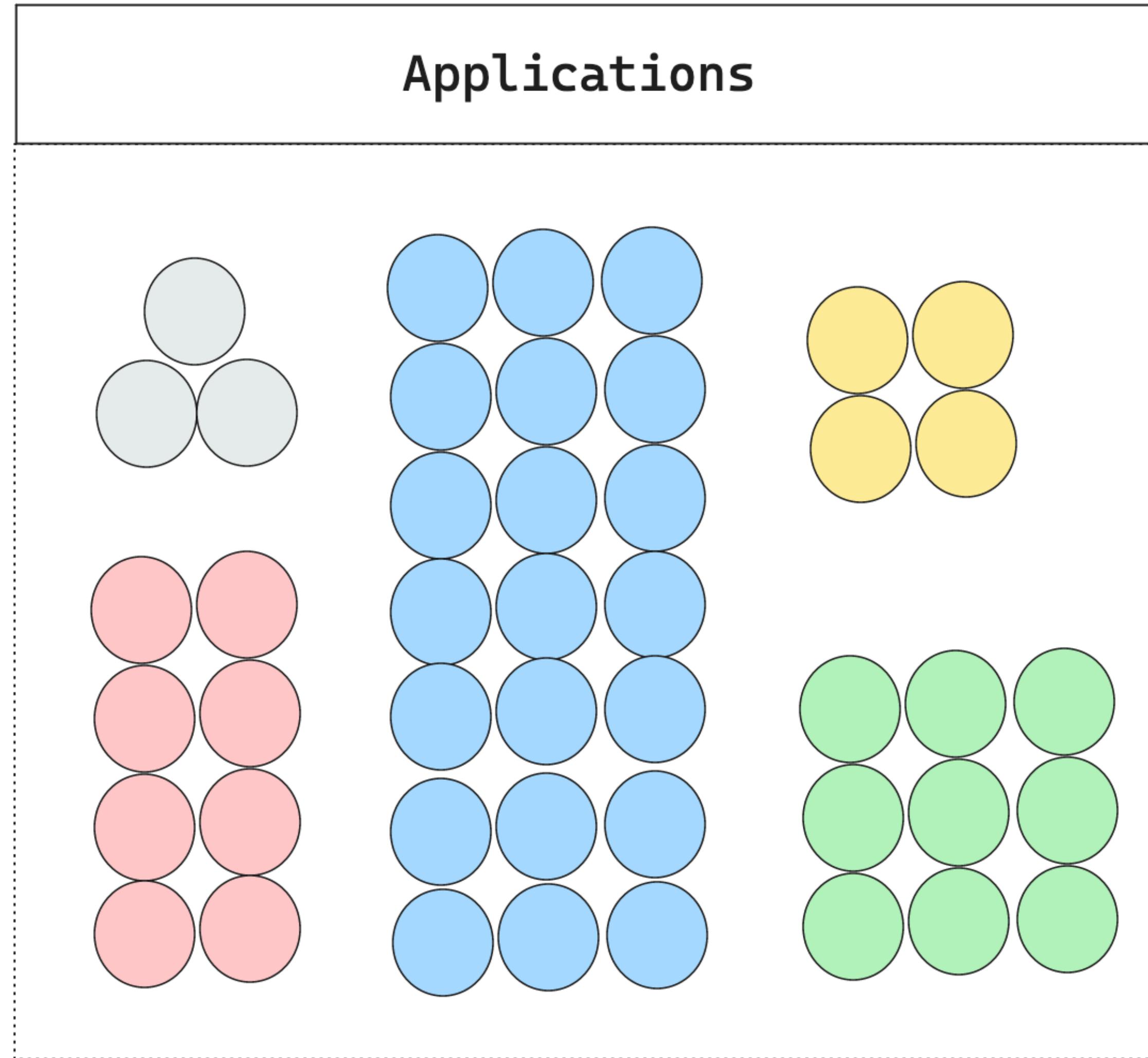
the network

- Anoma is an intent-based network of autonomous communities. Communities can participate in the Anoma network by running the Anoma protocol.
- The Anoma network is composed of operators , people, and communities running the Anoma protocol
- For communities, participating in the Anoma network, it provides both *autonomy* and *interoperability*
 - Autonomy through infrastructural self-**sovereignty**
 - Interoperability through protocol compatibility

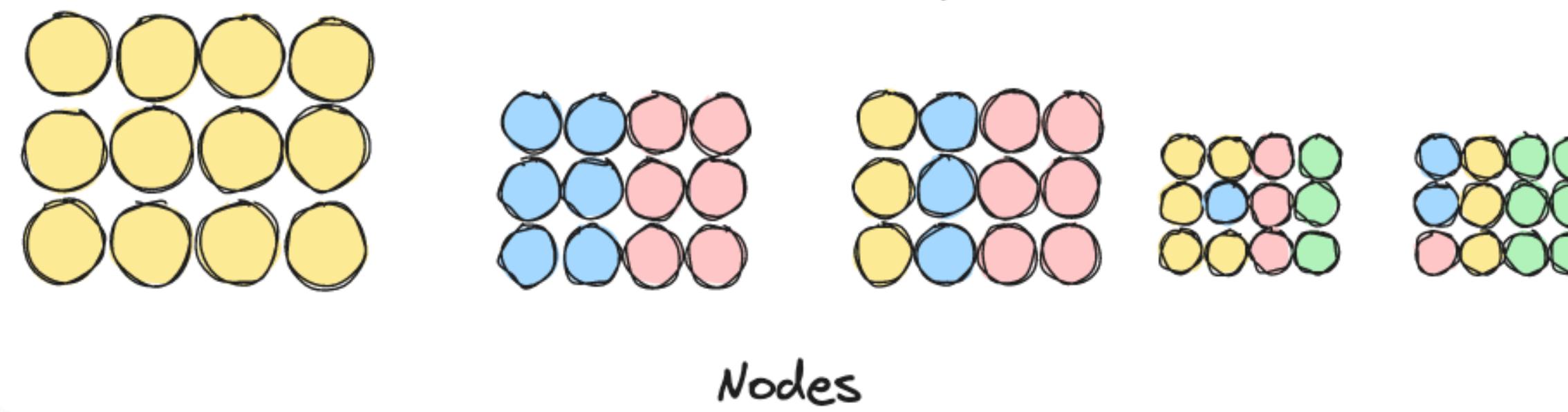
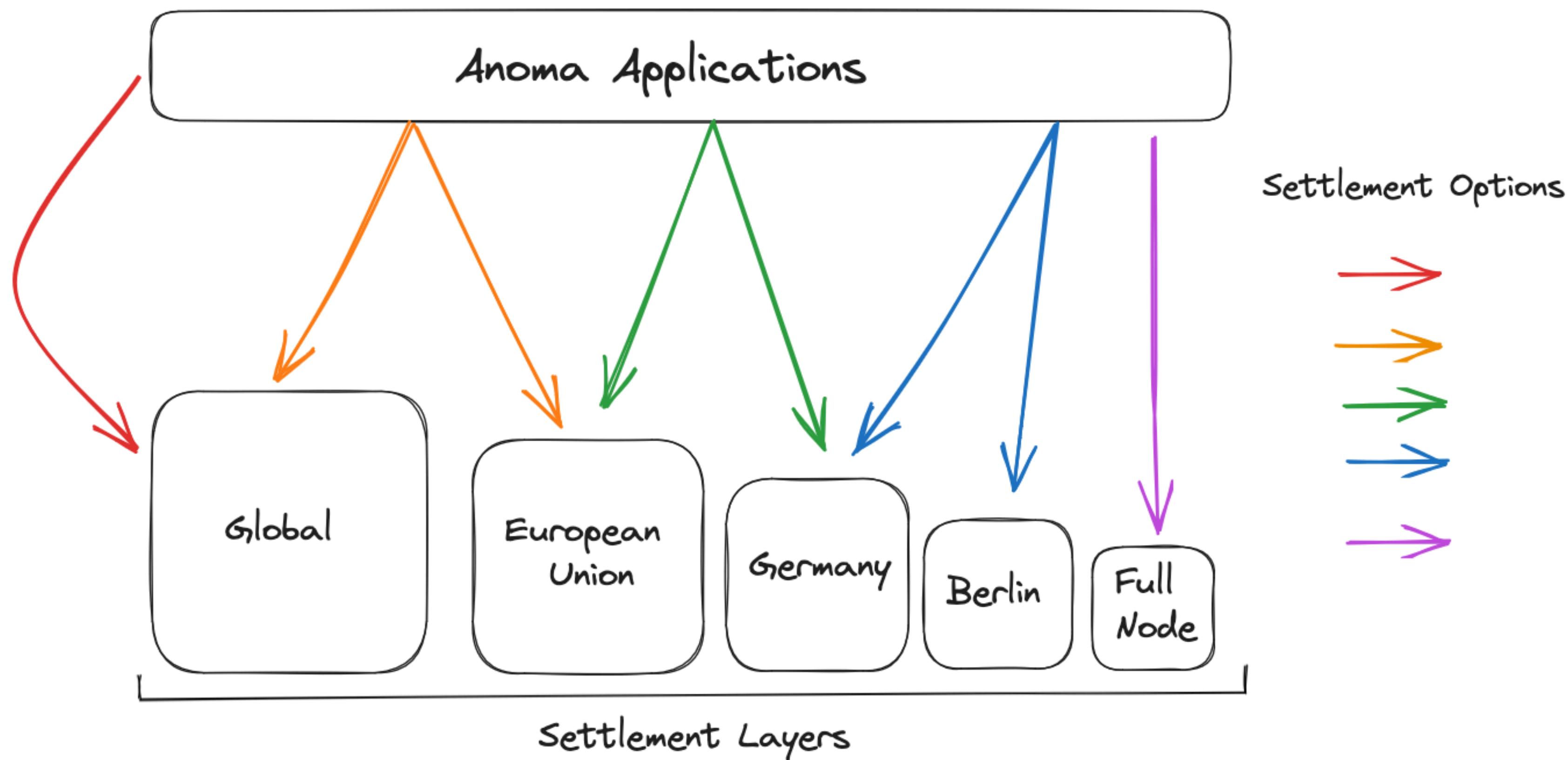
Ethereum Network



Anoma Network



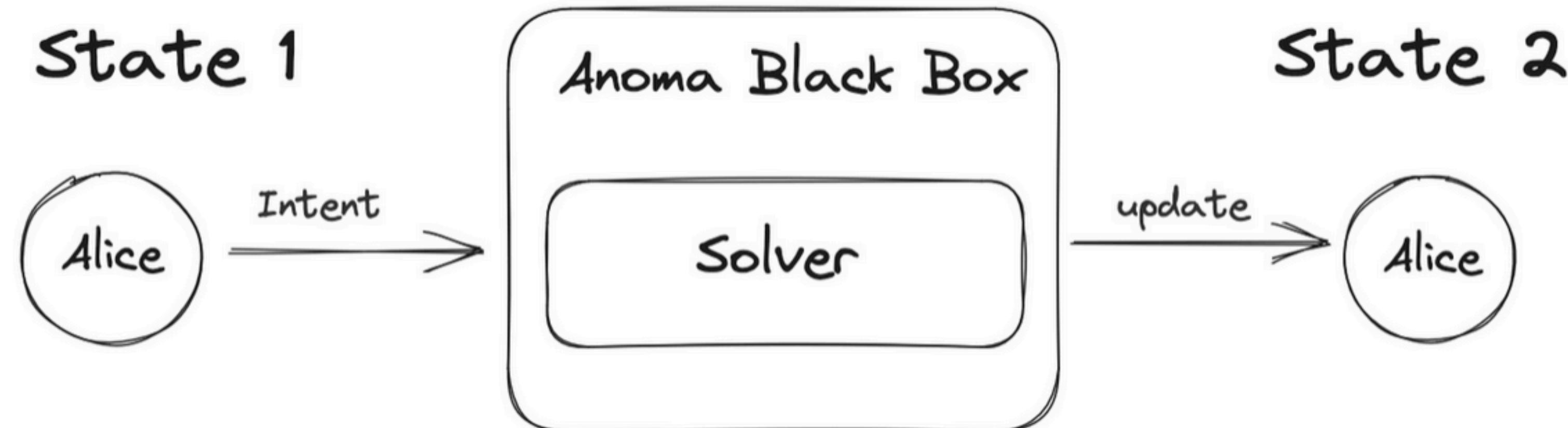
Fractal Instances

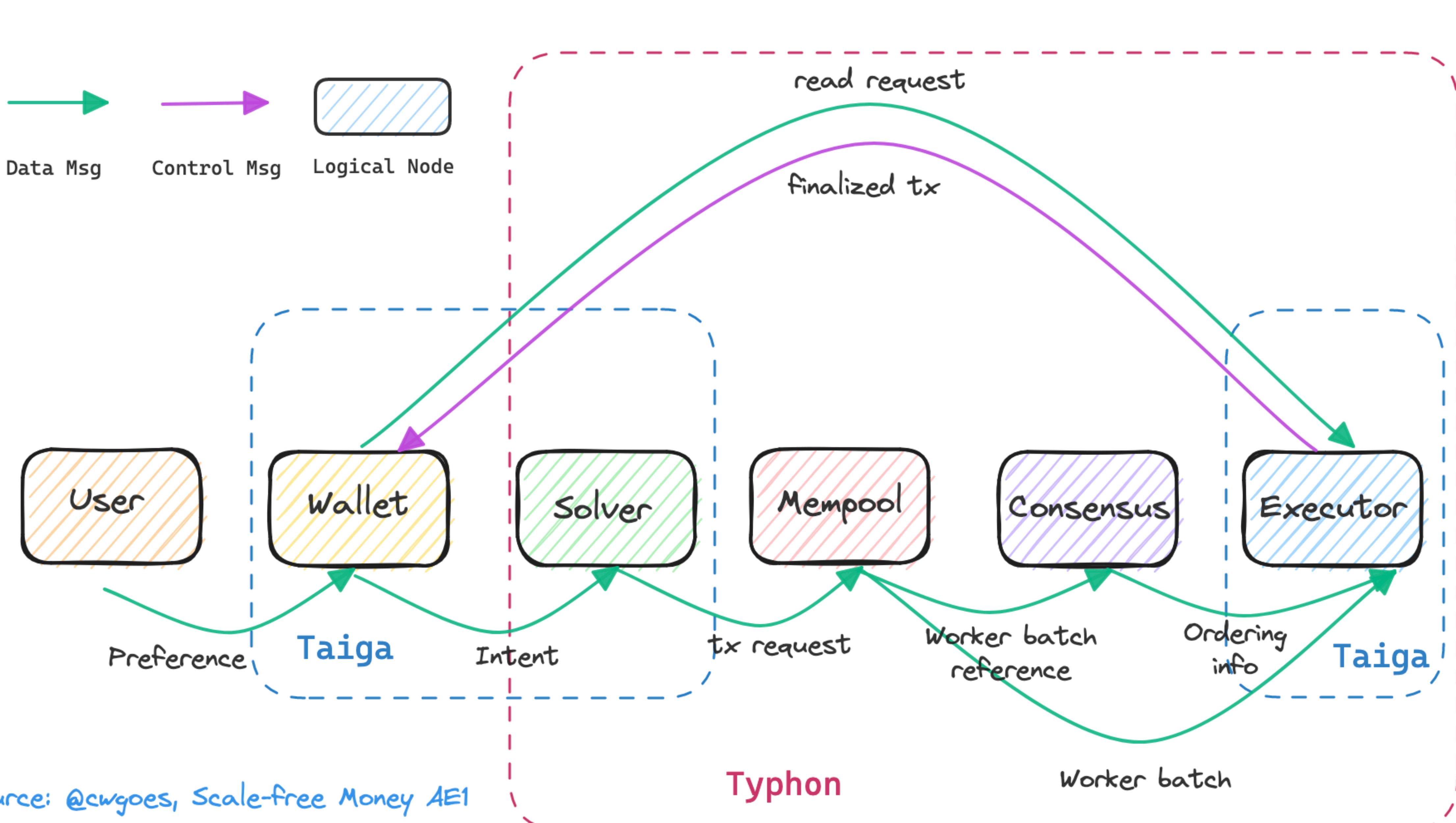


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the protocol

- The protocol architecture is designed around the concept of intents
- After a user sends an intent, two phases take place: *counterparty discovery* and *settlement*





Source: @cwgoes, Scale-free Money AE1

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Three key Affordances

- For applications, Anoma offers developers and users three key affordances:
 - **permissionless intent infrastructure,**
 - **information flow control,**
 - **and intent-level composability.**

Permissionless Intent Infrastructure

- Programmable Intents with a general protocol
- Permissionless substrate for Decentralized solving



Solver



Indexer



Validator Node

Information Flow Control

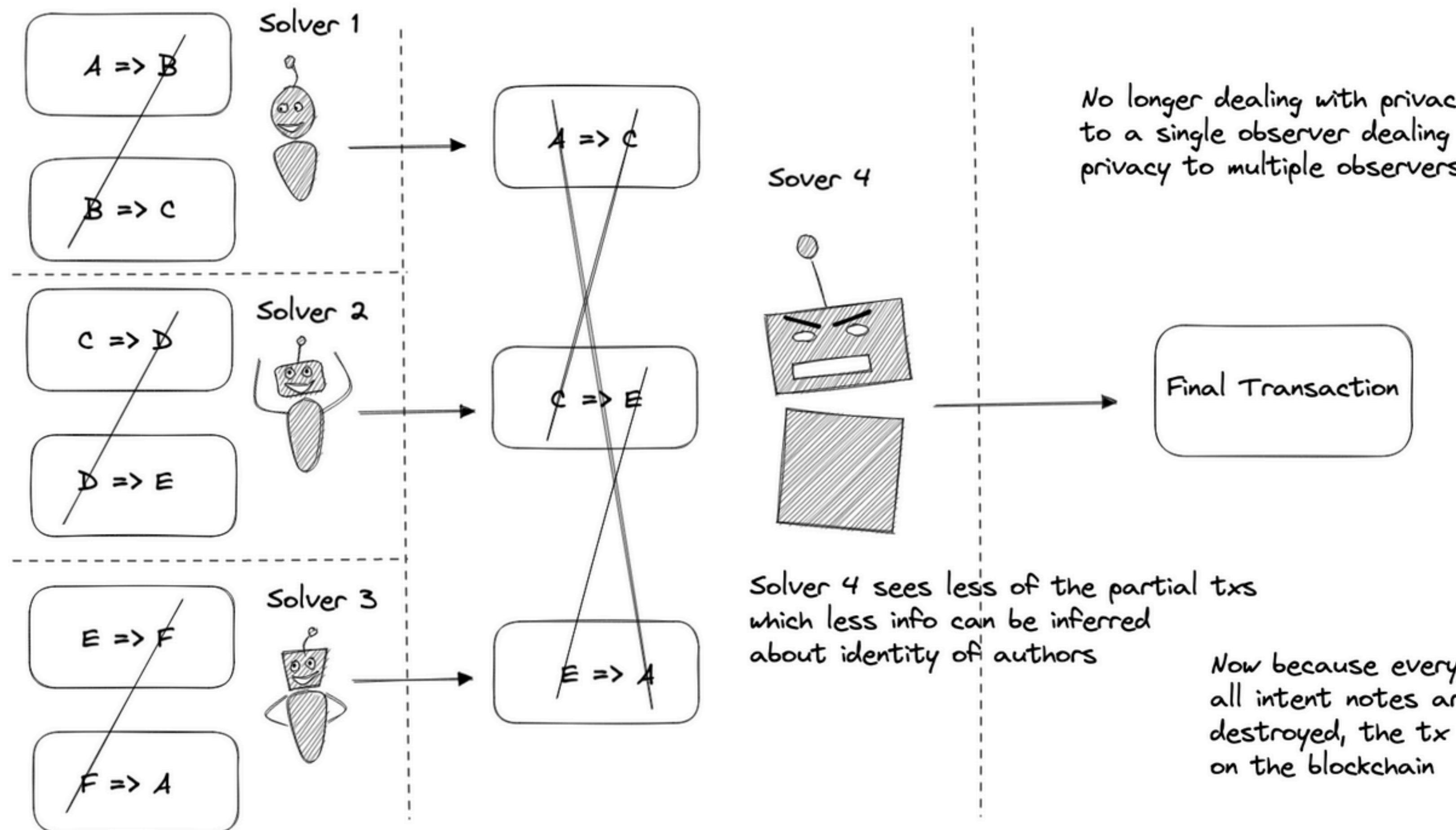
Programmable Privacy

- Private **settlement** & private **counterparty discovery**
- By using Anoma, users and application developers take control over
 - where,
 - when,
 - and to whom they share information.

Intent level composability

This is the cross-chain UX you were looking for

- Applications are composable
 - Intents can be composed and settled across domains (can be atomic)



Sources: Christopher Goes, Yulia Khalniyazova

Part 3: Synthesis

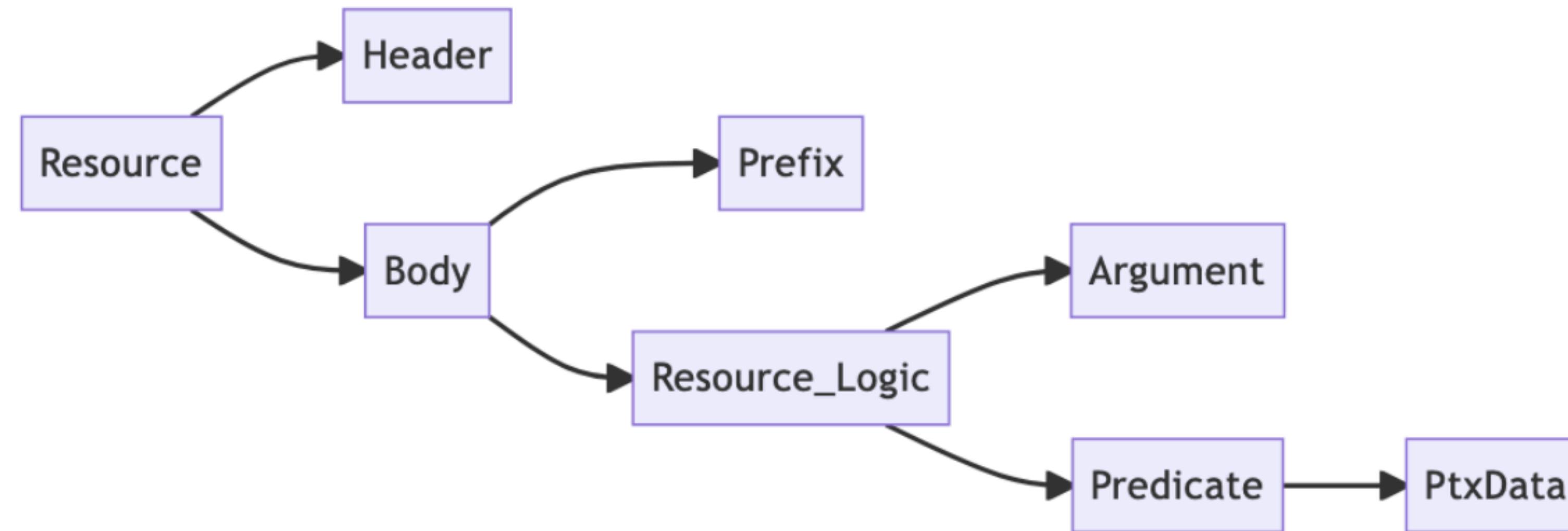


What is an Anoma application?

- An application is a set of resource logics (predicates) and solver algorithms
 - Resources are the atomic units of state (instantiated as Notes or UTXOs)
 - `Resource.Logic` specifies under which conditions Resources that carry it can be created and consumed. It is defined by its `Predicate` and its `Arguments`

Resources

```
data ResourceBody = ResourceBody {  
    resource_logic :: ResourceLogic,  
    prefix :: [ContentHash],  
    suffix :: Nonce,  
    quantity :: Natural,  
    controller :: ByteString, TerminalDAG ExternalIdentity}
```



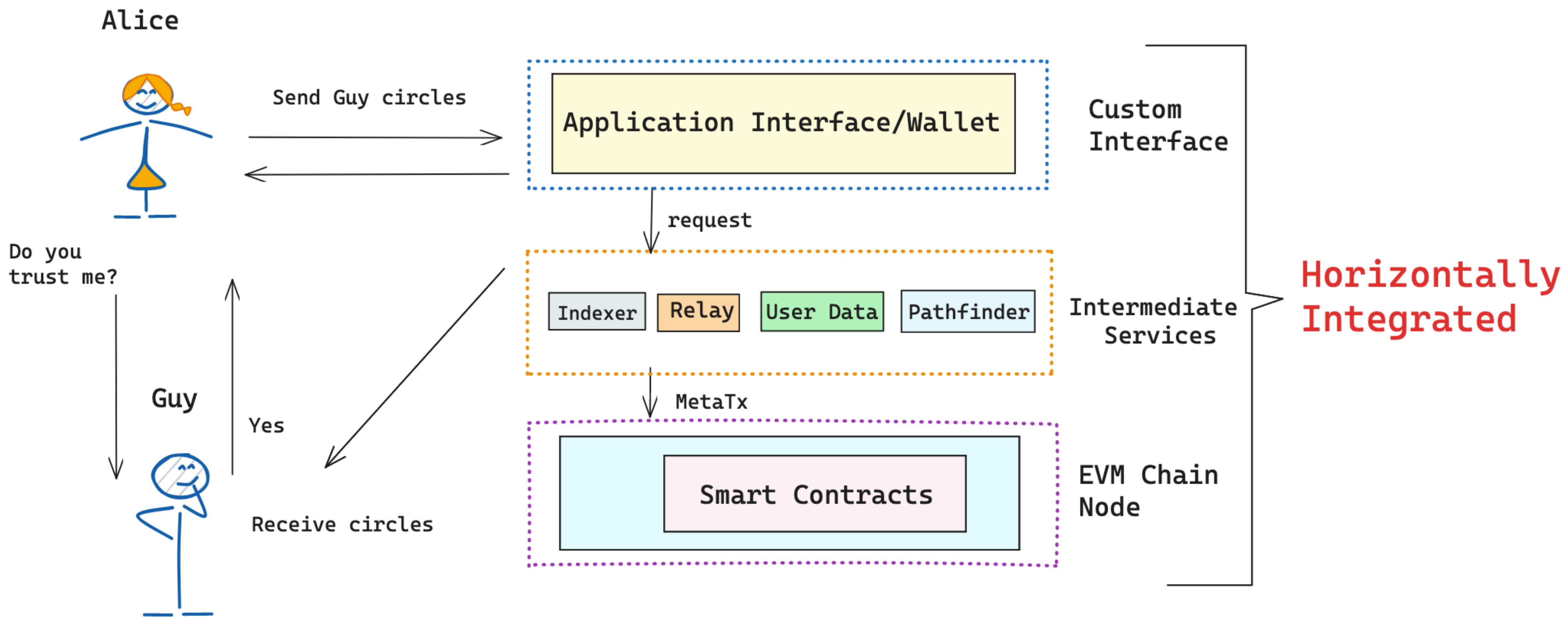
What Kind of novel Applications?

Scale-free money

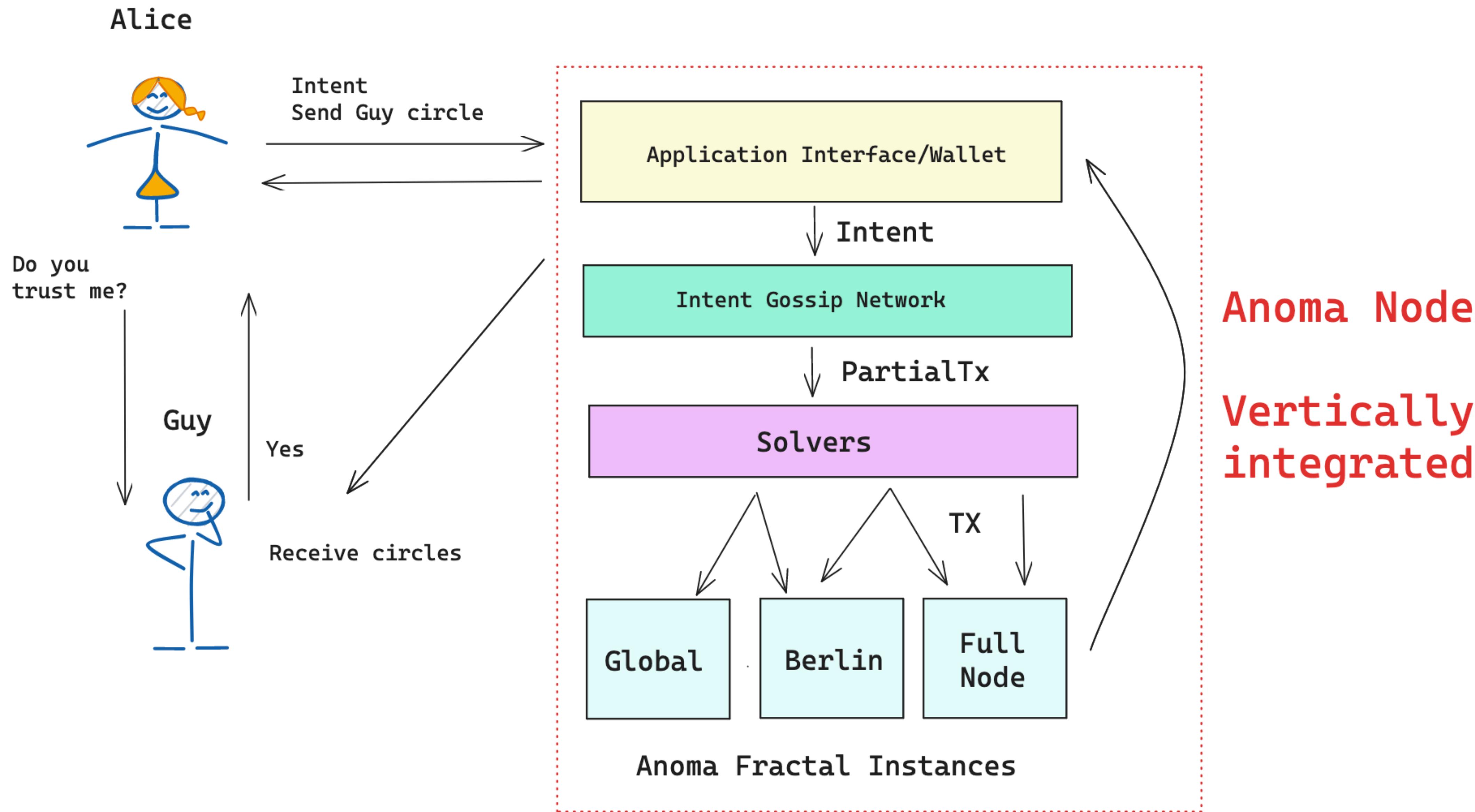
- Scale-free money
 - Is credit money
 - Decentralizes trust and
 - Shifts measurement to the future

Example: Circles Garden

On Gnosis Chain



Circles Entropy on Anoma



What else?

- Public Goods Funding
- Time Banks
- Social
- Mesh- Messaging
- Auctions
- Physical Logistics/Transport
- and much more....

"Public Signal"

- Dominant Assurance contracts - an entrepreneur can design a contract where the equilibrium has agents contributing to produce the public good as a dominant strategy
 - Concrete Example; Intent-centric Kickstarter with demand side aggregation
 - The counterparty discovery process is responsible for matching these (and settling, when consumers and producers are matched).
 - Conditional commitments from demand side - I will fund this project if "Alice" invests - gamification

Time Banks

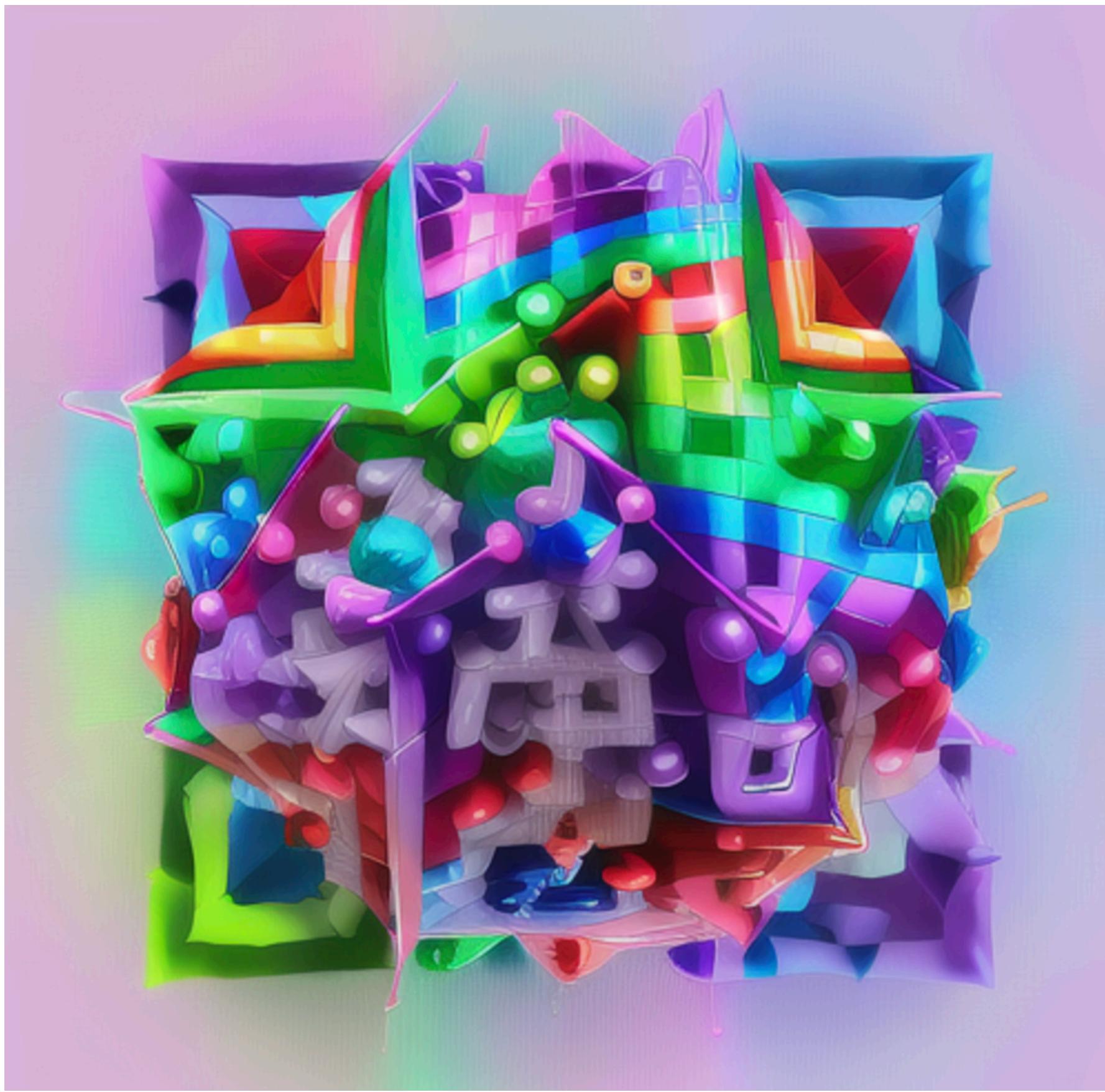
- Time banks facilitate the trade of time for skills without needing "money" as medium of exchange.
- Time banks reward community members volunteering with time credits – one hour's work always equals one time credit. These can be banked and then spent on services from other members, saved for the future, donated to others, or redeemed for goods donated by local firm
- It employs a service broker who recruits participants and maintains a database of services on offer and the balances of participant.
 - Seyfang, G. (2003). "With a little help from my friends." Evaluating time banks as a tool for community self-help. *Local Economy*, 18(3), 257–264

Conclusion

- In Part one we discussed applications
- In Part two we answered the question what is Anoma?
- In Part three we described some of the novel applications that can be built with Anoma

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Get in Touch & Learn More



Research Forums



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Appendix: History of Intents

- March 2009 & Earlier - beginning with A commitment folk theorem modeling conditional commitments in strategic games. Earlier eludes to the Agoric Open Systems Papers and Program Equilibria literature
- February 2018 - The Wyvern protocol - where the protocol's job is to match buyer and seller intent on-chain such that the asset transfer and payment happen atomically.
- March 2019 - Virgil Griffith's idea of Ethereum is game-changing technology, literally - using credible commitments with a permissionless credible commitment device to *warp* non cooperative games into cooperative games. Send him Mail @ virgil.gr
- August 2022 - The Anoma white paper introduced Anoma's intent-centric architecture and described an intent as an off-chain signed message that encodes which state transitions a user wants to achieve.
- May 2023 - Research Day in New York was the coming out party for intents in the broader research community.
- August 2023 - Intents Day o in Menlo Park during SBC brought together a group of leading builders, practitioners and academics to discuss Intents