Super App Technical Specification

Executive Summary

The Scanopy Super App is a comprehensive blockchain ecosystem platform that solves the critical bootstrapping problem in blockchain networks through integrated launchpad, cross-chain explorer, AMM liquidity, and wallet functionality. By combining these four core components into a seamless user experience, Scanopy creates the "one-stop shop for all things Canopy" where rewards attract stakers, staking attracts traders, volume attracts users, and usage attracts chains in a virtuous cycle.

CNPY token serves as the native hub asset (always one side of every liquidity pool) with a 33% staking threshold that unlocks subsidized block rewards, creating economic alignment between platform success and token value while simplifying user experiences through template-based abstractions of Canopy Core complexity.

1. System Architecture Overview

Core Components Integration

The Scanopy Super App employs a modular microservices architecture with four primary components that share state, authentication, and user context:

None

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┌──────────────────┐    ┌──────────────────┐
┌──────────────────┐    ┌──────────────────┐
│   LAUNCHPAD      │    │  CROSS-CHAIN     │    | CANOPY-ROUTED
│    |             │    │         EXPLORER
| Price Discovery |    |                  |    |     AMM    |    |
|
| Template-based  |    |    WALLET        |    |     Swap   |    |
| Chain Creation  |
|                 |    |    Staking       |    |            |    |
|
|                 |    |   Discovery      |    |            |    |
|
```

Native Token Economics (CNPY Hub Model)

CNPY serves as the hub asset in a model where every liquidity pool pairs external assets with CNPY, creating natural value accrual through:

- Trading Fee Accumulation: All AMM trading fees partially accumulated in CNPY
- Security Bonding: Stakers and LP providers bond CNPY for economic security
- Governance Rights: CNPY holders control platform parameters and treasury
- Subsidization Unlock: 33% staking threshold triggers CNPY block reward distribution

2. Component 1: Launchpad Functionality

2.1 ELI5

1. A system that allows builders to easily launch chains
2. A system that allows users to discover and trade on those chains
3. A filtering mechanism to filter out low quality projects

2.2 Feature Requirements

Market Discovery Launchpad

This tool will be used by developers to understand if there's a market on Canopy for their product. It's a tool that enables developers to share their idea (whitepaper), code (if any), Canopy template, community (social proof), and other assets (website) to the community and quickly launch to see if the project has legs.

This centralized front end will act like a filter to the multitude of projects "one-click deploying" within the Canopy ecosystem. Centralizing this part of the process enables nimble development and ease of use for our team. This mechanism acts with similar dynamics to Pump.fun, but has actual utility. Projects list their information (code (github), social accounts (X), whitepapers) and "launch" by pre-deploying a virtual chain with a virtual token that is bought and sold by the Canopy community. By deploying a virtual chain, we save infrastructure costs on projects that don't ever receive community buy-in. If criteria are met (see below), that chain is immediately launched and the liquidity secured during the launch is put into the two-sided AMM associated with that chain.

How the system works

- Virtual pool: Each new token starts with an internal, virtual liquidity pool. This pool has predefined balances of CNPY and tokens, which establish the initial price.
- User purchases: When a user buys tokens, they add CNPY to the virtual pool through a minting mechanism. The application uses the bonding curve formula to calculate the amount of tokens the user receives via minting, which changes the ratio of assets in the virtual pool and causes the price for the next buyer to increase.
- User sales: When a user sells, they send tokens back to the Liquidity Pool which are burnt, reducing the token supply. In return, they receive CNPY from the virtual pool, and the token's price drops.
- Token "graduation": When a token's market cap on the bonding curve reaches a parameterized threshold (e.g. $50,000 or similar), the Conversion Threshold, the application automatically creates a liquidity pool on our AMM. All of the funds and tokens from the bonding curve are sent to this new pool, establishing it on the broader market, visible on Scanopy.

Why?

- Low cost: Only 100 CNPY (or some other reasonable amount) is needed to issue a token.
- No need to create liquidity: When the market cap reaches the Conversion Threshold, the platform automatically creates a liquidity pool.
- Process automation: Automatically goes online for trading after reaching the market cap, no manual operation required.
- Fair launch: No token reserves, full abandonment of rights, tokens are directly circulated publicly.
- Templatization & Transparency: Developers adopt a Canopy template so buyers know what they’re getting into, plus they have the ability to DYOR on the project.

TL:DR: This mechanism lowers the threshold for chain creation to near zero, making token issuance simpler and more convenient.

Pre-launch Workflows

Builders who want to launch a custom chain will select and customize a template in their own Github repository. This adds credibility to projects and creates utility for end-users.

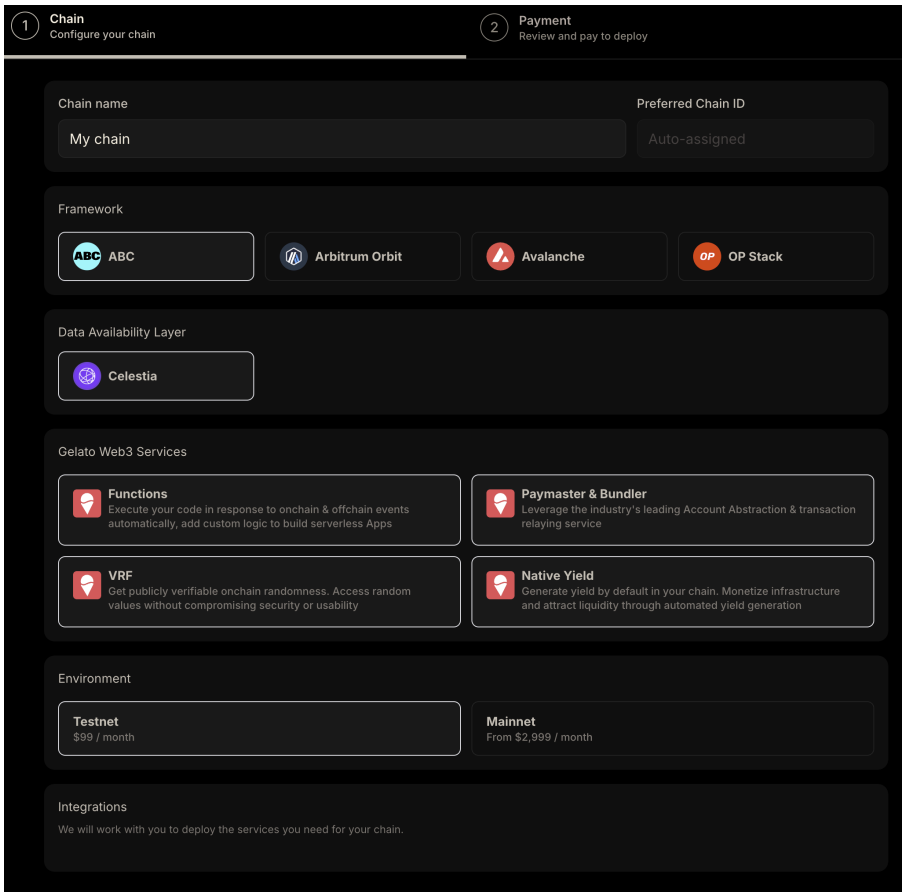
Template Features:

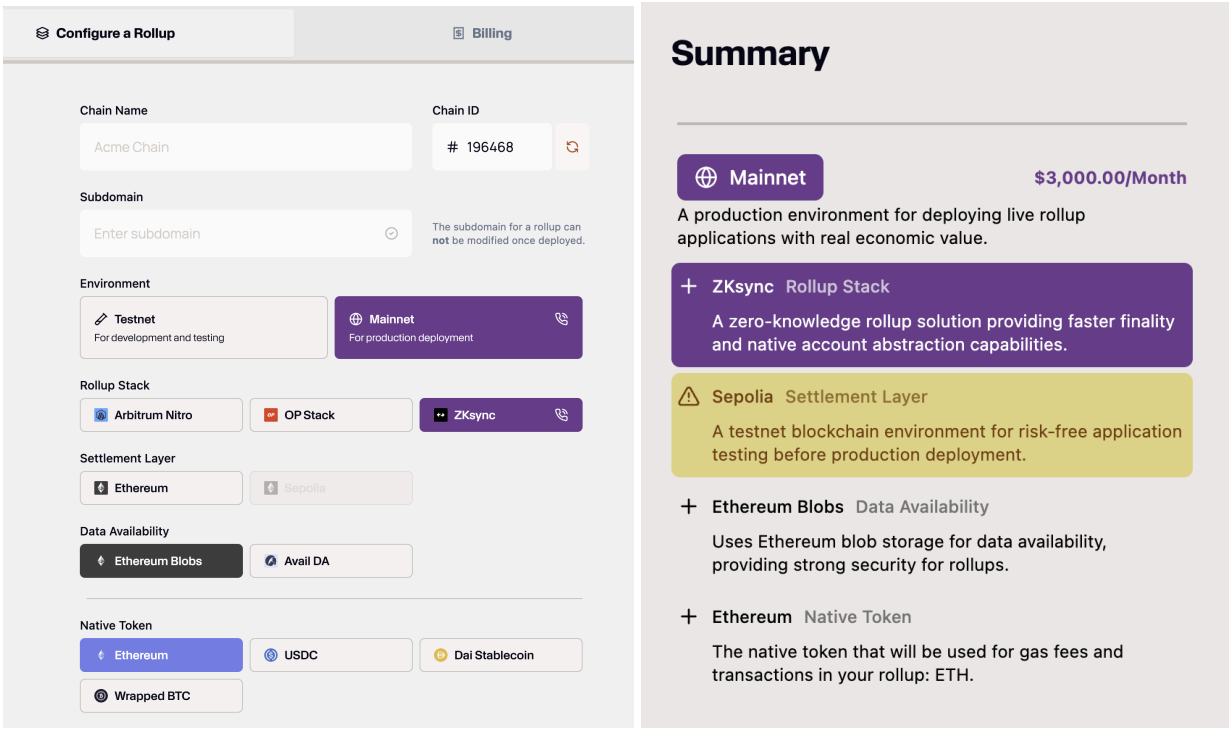
- Language: Code in your preferred protobuf compatible language
    - C++
    - Java
    - Python
    - Go
    - C#

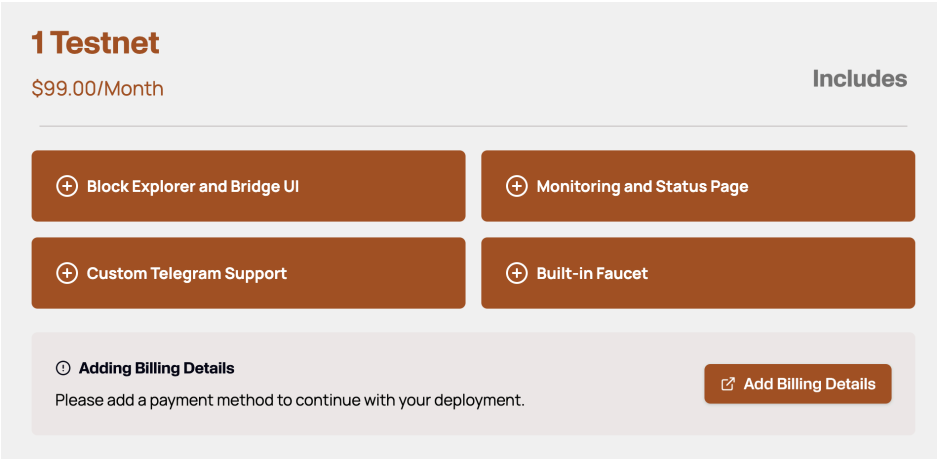
    - Ruby
    - Objective-C
    - PHP
    - Dart
    - JavaScript (for web and Node.js)
    - Kotlin
    - Swift
- Parameter Customization: Token supply, consensus mechanisms, validator requirements

Once the chain is ready and tested, builders will proceed to launch their chain through our launchpad.

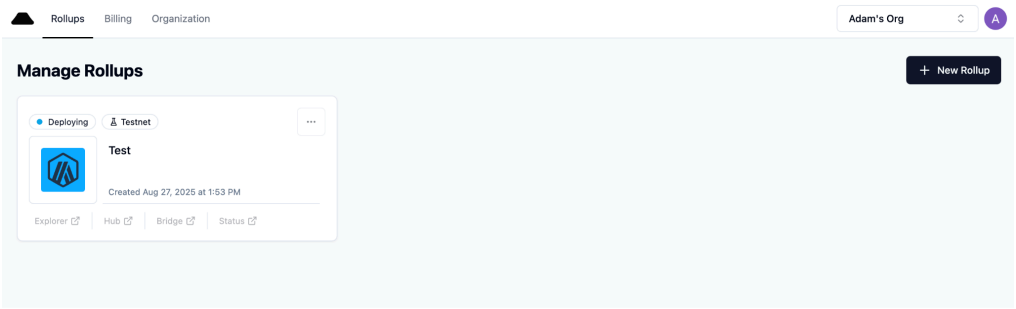
Example of experience:

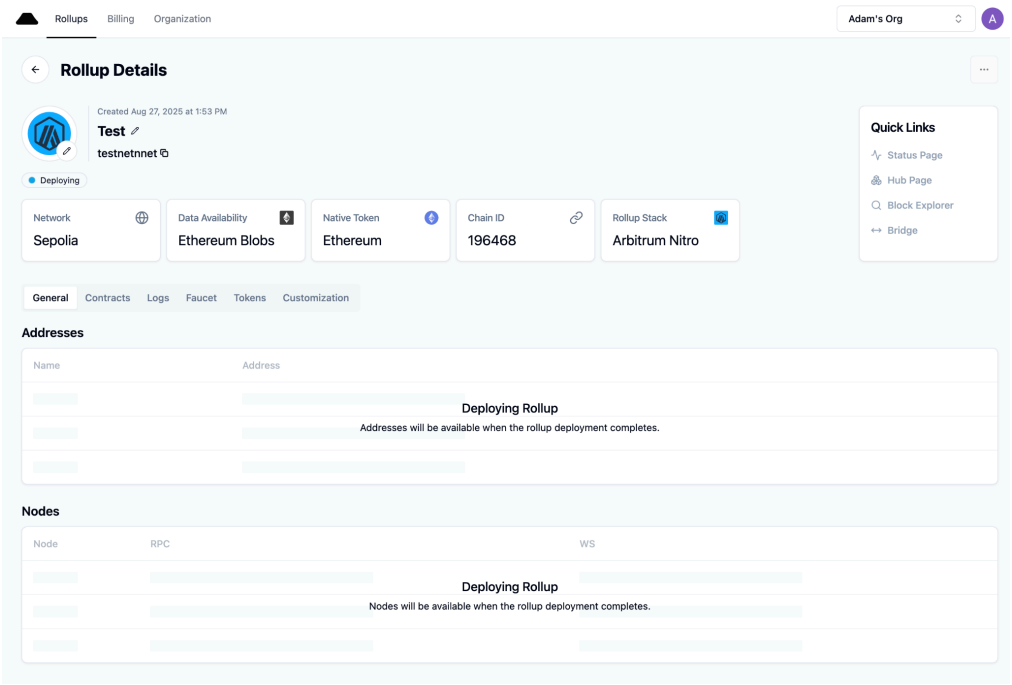




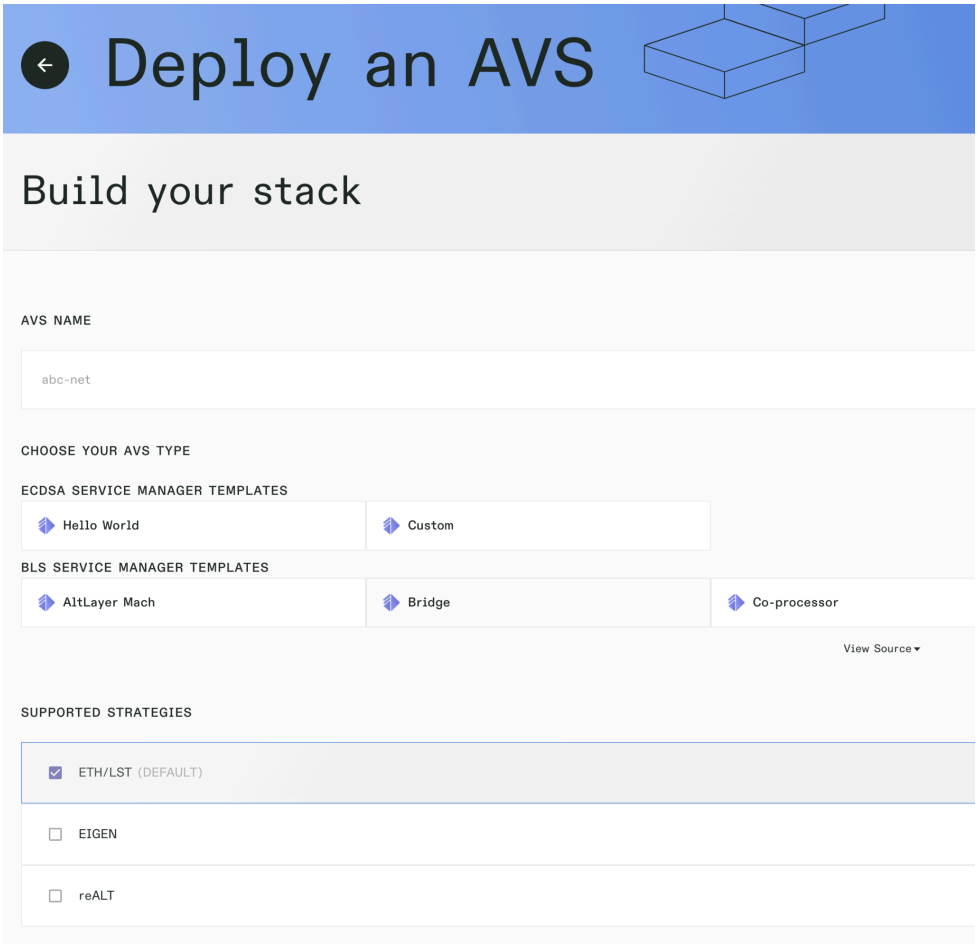


Management dashboard





Example of Templates



The Virtual Pool

Basic Features

- The token is launched on the specified date/time
- The token is created and the first order happens (the builder's buy, if they choose to do that)
- Users can buy (mint tokens) and sell (burn tokens) tokens at any time in the market,
- The bonding curve ensures that as purchase volume increases, prices rise, thus providing liquidity without the creator manually building a pool.
- Bonding Curves: Price increase per CNPY paired with chain tokens.
- Fair Launch Model: No presales or insider advantages, transparent pricing
- Graduation System: Automatic migration to main AMM at configurable milestones
- A parameter that controls the graduation threshold - may change over time

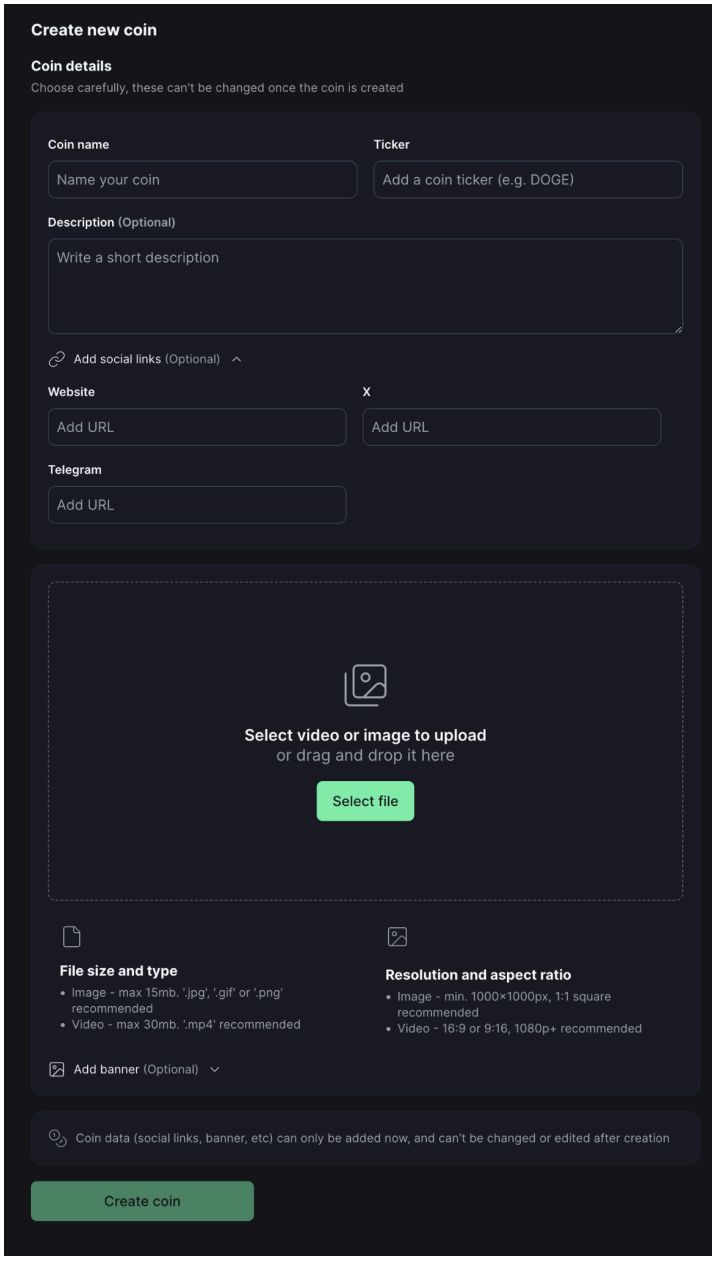
Launching: The Virtual Pool Process

The steps to launch a virtual pool on the platform are as follows:

1. Choose a unique chain name (Name) and token name (Ticker).

2. Write a simple description for the chain.
3. Select a template and customize the parameters according to the use case.
4. Connect Github for chain auto-upgrade (used to incorporate dev's specified utility)
5. Upload an image or video of the chain's token.
6. Add supporting information about the implementation (github, add website, link whitepaper)
7. Add social proof, social media links (such as Twitter, Telegram).
8. Enter the quantity you want to purchase (builders can purchase some to remain in control).
9. Pay a creation fee of [100] CNPY and the cost of the purchased tokens.
10. Set the date and time of the launch

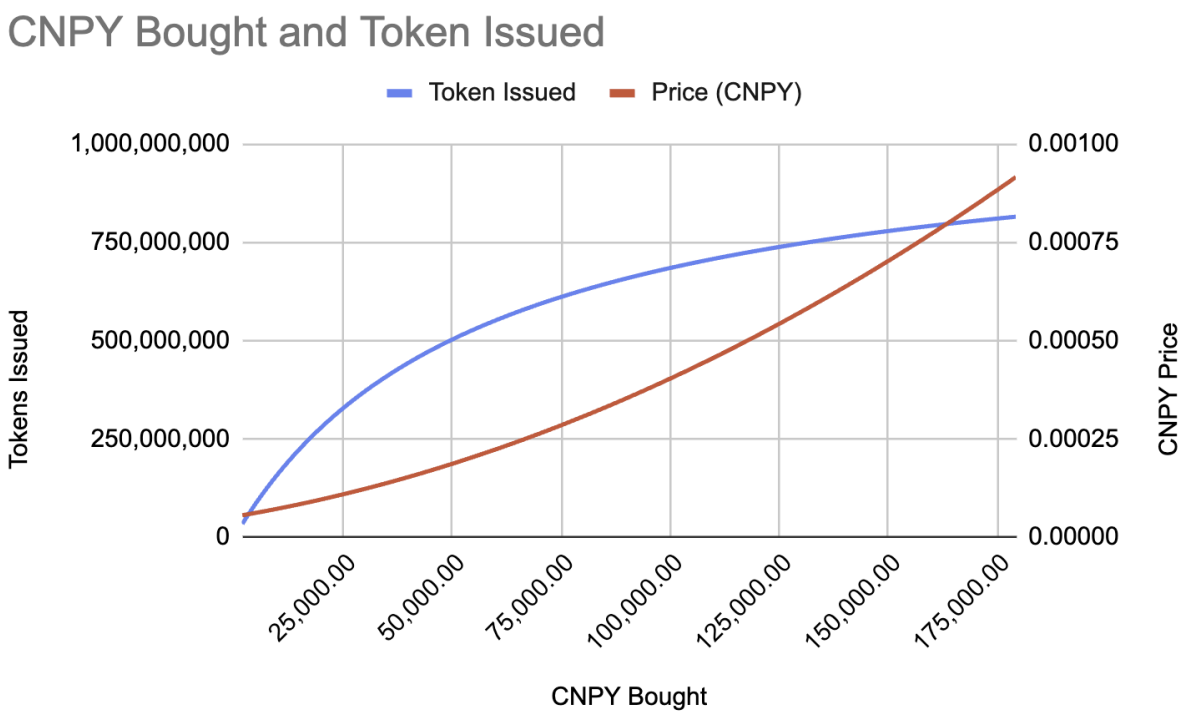
Example (Pump.fun):



Bonding Curve

The bonding curve implementation is based on the bonding curve implemented by Pump.fun. They use a sum product style bonding curve with mint and burn mechanics. This price discovery tool is effective where liquidity is very limited. A bonding curve is a mathematical curve that defines a relationship between price and token supply.

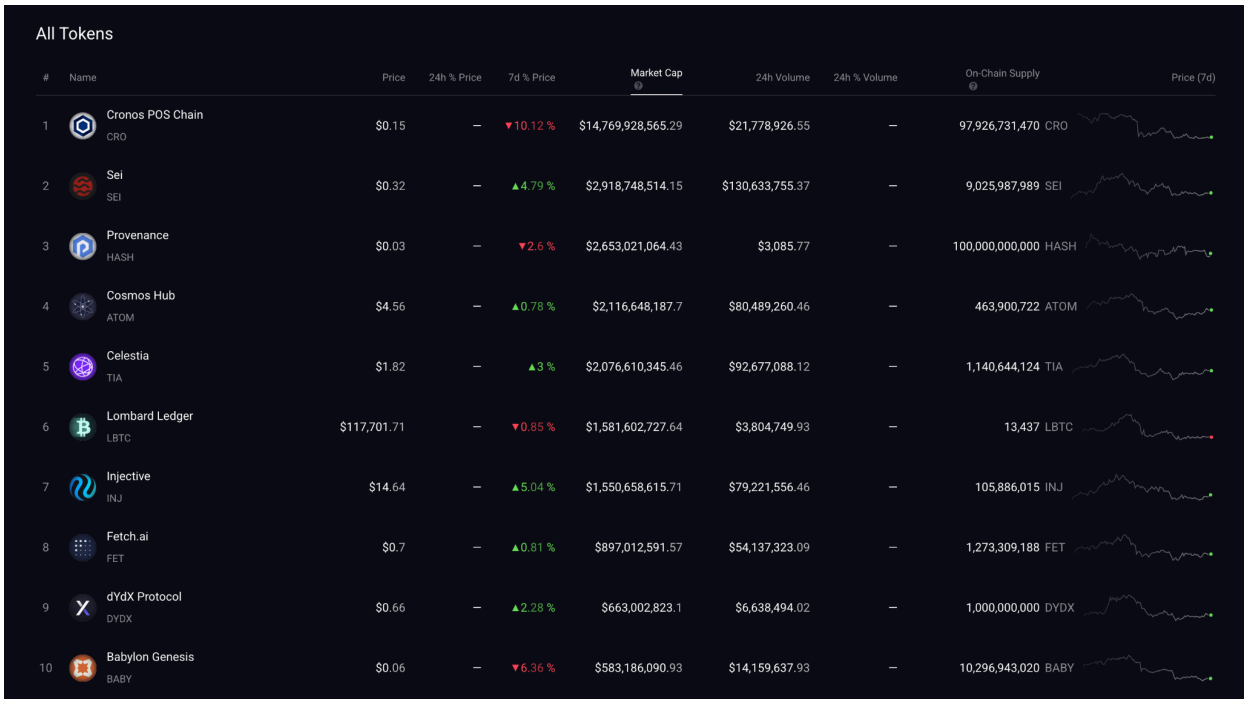
Here’s an example bonding curve that demonstrates the price between CNPY and the issued token:



For more information, please see [this spreadsheet](#).

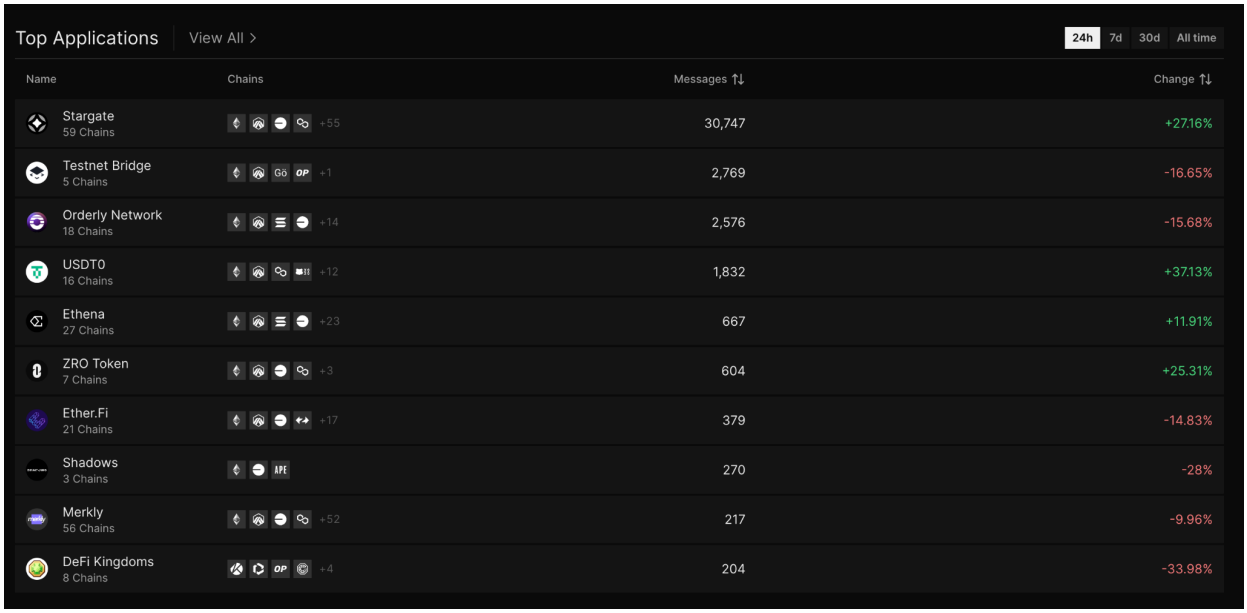
Discovery

Users will want a discovery dashboard to find and support launching projects.



All Tokens

#	Name	Price	24h % Price	7d % Price	Market Cap	24h Volume	24h % Volume	On-Chain Supply	Price (7d)
1	Cronos POS Chain CRO	$0.15	–	▼10.12 %	$14,769,928,565.29	$21,778,926.55	–	97,926,731,470 CRO	
2	Sei SEI	$0.32	–	▲4.79 %	$2,918,748,514.15	$130,633,755.37	–	9,025,987,989 SEI	
3	Provenance HASH	$0.03	–	▼2.6 %	$2,653,021,064.43	$3,085.77	–	100,000,000,000 HASH	
4	Cosmos Hub ATOM	$4.56	–	▲0.78 %	$2,116,648,187.7	$80,489,260.46	–	463,900,722 ATOM	
5	Celestia TIA	$1.82	–	▲3 %	$2,076,610,345.46	$92,677,088.12	–	1,140,644,124 TIA	
6	Lombard Ledger LBTC	$117,701.71	–	▼0.85 %	$1,581,602,727.64	$3,804,749.93	–	13,437 LBTC	
7	Injective INJ	$14.64	–	▲5.04 %	$1,550,658,615.71	$79,221,556.46	–	105,886,015 INJ	
8	Fetch.ai FET	$0.7	–	▲0.81 %	$897,012,591.57	$54,137,323.09	–	1,273,309,188 FET	
9	dYdX Protocol DYDX	$0.66	–	▲2.28 %	$663,002,823.1	$6,638,494.02	–	1,000,000,000 DYDX	
10	Babylon Genesis BABY	$0.06	–	▼6.36 %	$583,186,090.93	$14,159,637.93	–	10,296,943,020 BABY	



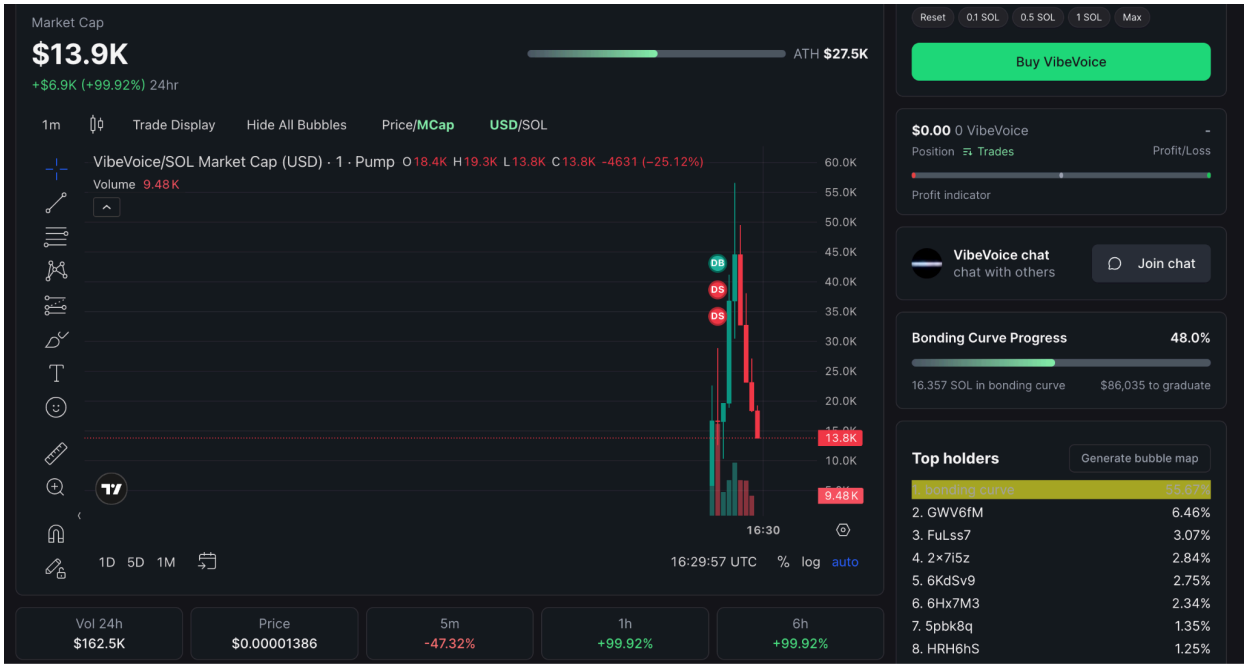
https://layerzeroscan.com/

Graduation

When a token's market cap on the bonding curve reaches a predefined threshold, the Conversion Threshold, the application automatically creates the chain and issues the liquidity to the two-sided AMM pool. The chain is created based upon the predefined template so that we (Scanopy maintainers) know it will work upon launch. This is when the handover to the core team happens - they take the figurative reins from hereon out.

Because the Github of the core team is connected, the chain will initiate an auto upgrade to the code in Github, enabling the utility of that particular application. This can happen upon a governance action from the validators at a pre-defined block height.

For an example of what “graduation” looks like, please see the middle left of this picture below (“Bonding Curve Progress”).



Implementation:

- A basic template is deployed (selected by the user in the launch process) based on initial parameters
- Deployed to the security root specified by the user (initially only Canopy)
- Upon a specified block, the chain auto upgrades to align with the Github repo

Deployment Process

1. Template Selection: The template is defined at the launch process.
2. Configuration Validation: Automated basic checks
3. Mainnet Launch: Chains auto deploy to mainnet deployment with validator bootstrapping
4. Post-Launch Monitoring: Real-time performance dashboards and alert systems (built in node monitoring system)

2.2 User Stories & Acceptance Criteria

User Story 1: As a non-technical entrepreneur, I want to launch a blockchain for my business in under 10 minutes.

- Given a user selects the Simple Template
- They complete the basic form (chain name, token symbol, initial supply, chain information, parameters)
- They deploy a virtual pool and reach the specified threshold for graduation
- Then a fully functional blockchain is deployed with automated liquidity from virtual pool
- And the chain appears in the Cross-Chain Explorer within 5 minutes
- And trading is immediately available in the AMM component

User Story 2: As a blockchain developer, I want to import my existing codebase and deploy it as a Nested Chain.

- Given a developer has an existing GitHub repository
- When they connect their repository through GitHub OAuth
- And provides a preview of deployment costs (CNPY) and configuration
- They deploy a virtual pool and reach the specified threshold for graduation
- Then a fully functional blockchain is deployed with automated liquidity from virtual pool
- And the chain appears in the Cross-Chain Explorer within 5 minutes
- And trading is immediately available in the AMM component

User Story 3: As an end user, I want to find and support various chains that are launching.

- User navigates to the Launchpad page
- They connect their wallet
- They click a project to learn more about the launch
- They enter a certain number of CNPY to place a buy order
- They receive tokens according to the bonding curve
- They sell tokens if they'd like to exit their position
- Upon graduation, they automatically receive an LP position in the AMM
- At a future point in time, the user pulls the funds and associated fees from the AMM and receives it to their wallet

2.3 Integration Points

Cross-Chain Explorer Integration:

- Virtual Pool Listing: New pools are automatically launched into the Launch interface
- Automated Listing: New chains automatically appear in chain rankings
- Performance Monitoring: Real-time chain health and validator metrics
- Staking Interface: Immediate staking availability for launched chains

AMM Integration:

- Liquidity Bootstrapping: Seamless transition from bonding curve to AMM
- Automatic Pool Creation: CNPY/NativeToken pools created at graduation

Wallet Integration:

- Chain Discovery: New chains automatically detected and added to supported networks
- Asset Management: Native token balances and staking positions tracked
- Governance Participation: Built-in voting interfaces for chain governance

Fee Mechanisms

Fee Distribution Model:

- Base Trading Fees: 1% per buy/sell (similar to Pump Fun standard)
    - Alternative, we could just tax sells (1% to sells only)
- Graduation fee: 5% of CNPY paid to front end hosts

3. Component 2: Cross-Chain Explorer

3.1 ELI5

1. A system that allows users (validators, builders, traders) to understand the activity within Canopy
2. A system that allows stakers to identify and execute on staking opportunities
3. A system that allows user to understand what's going on on Canopy's blockchain and other Nested Chains

3.2 Feature Requirements

Staking Discovery Interface

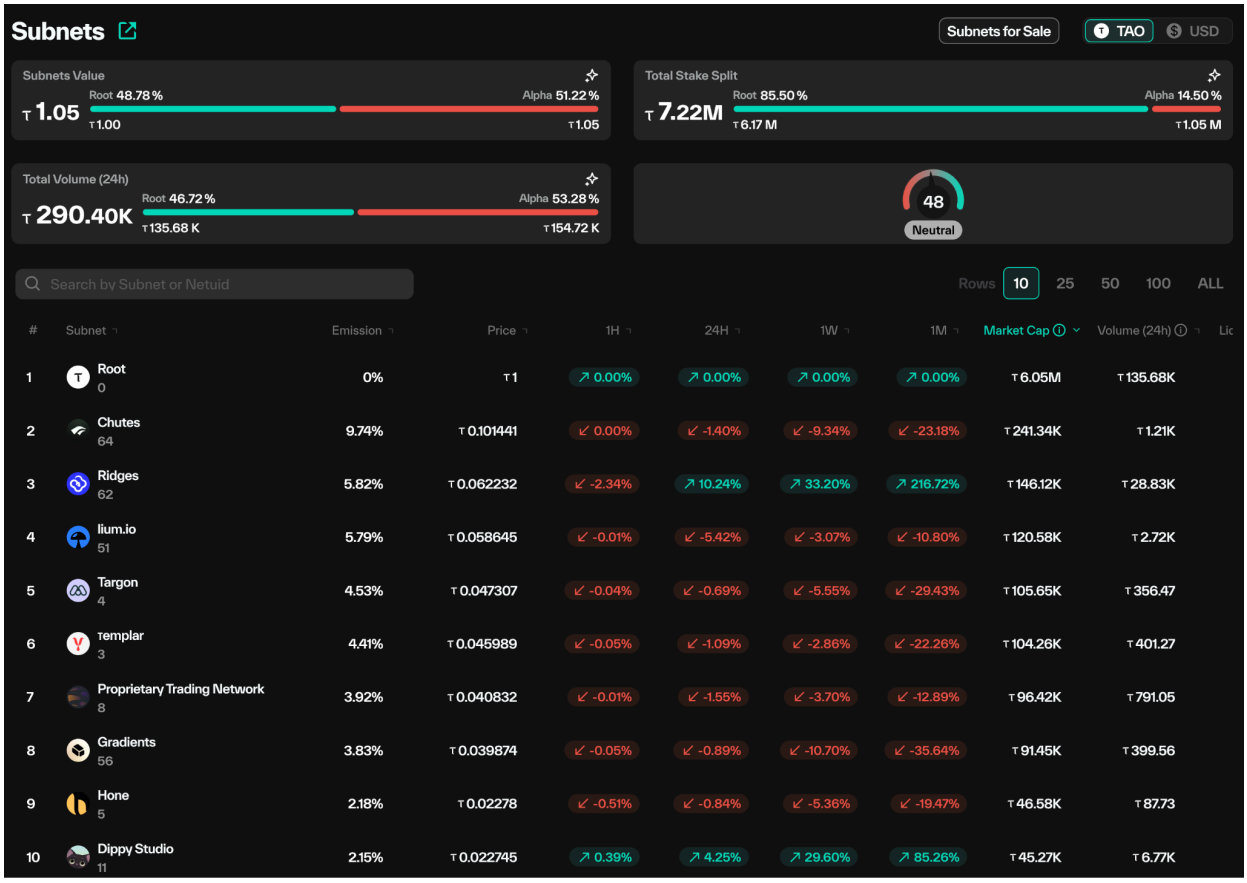
Chain Discovery Dashboard:

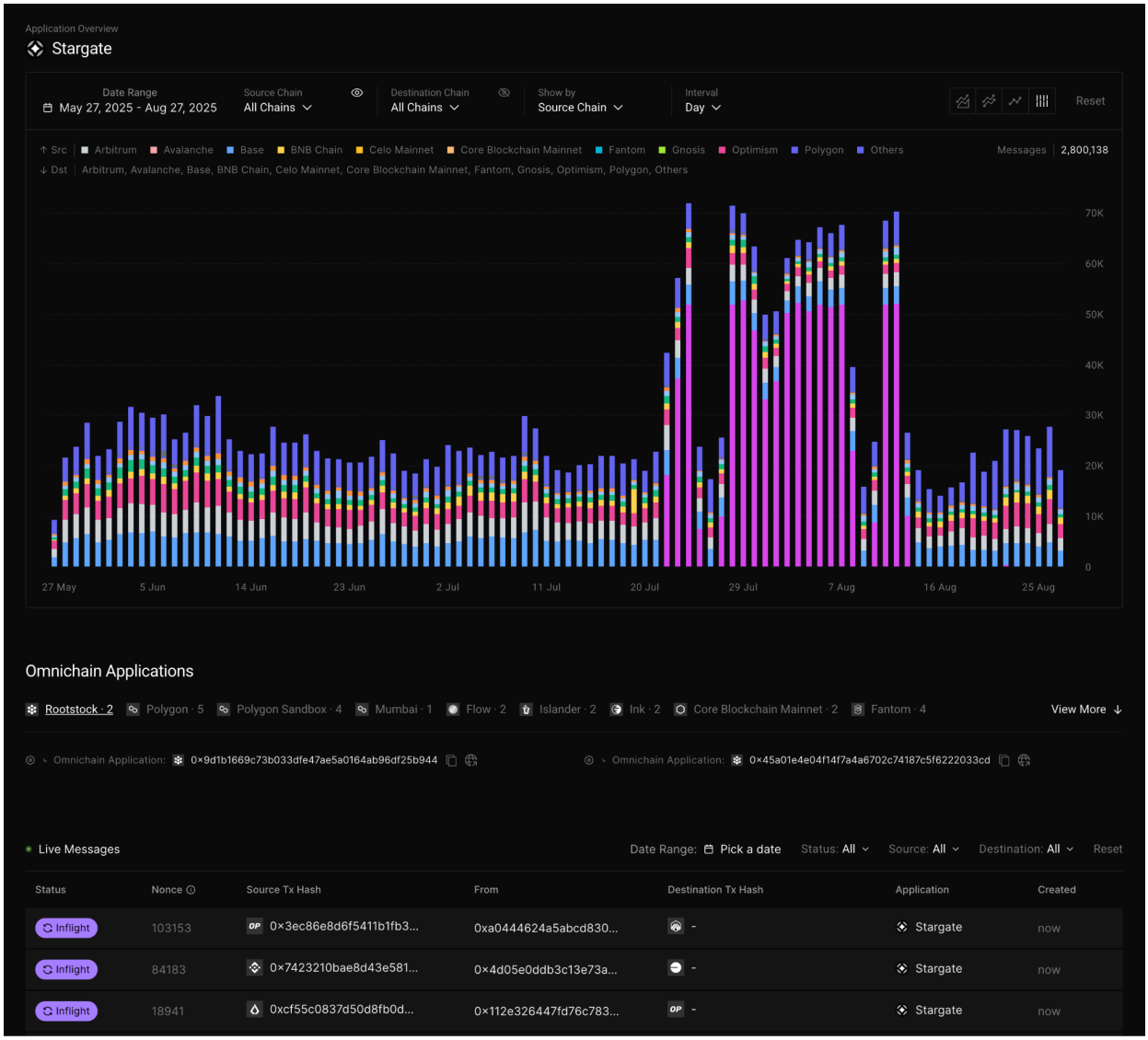
- Multi-Dimensional Ranking: Sort by total stake, trending volume, new chain status
- Risk Assessment Matrix: Color-coded risk levels based on validator count, chain age, code audits
- Opportunity Filtering: Filter by staking requirements, lock-up periods, yield ranges
- Social Proof Indicators: Community activity, developer engagement, transaction volume

Implementation inspired by TaoStats.io:

- Graded Staking Model: Chains are evaluated based on multiple criteria, such as staked amount, LP pool size, customization of code, etc.
- Cross-Chain Analytics: Validator performance across multiple Nested Chains

Example:


Subnets
Subnets for Sale
TAO
USD
Subnets Value
τ 1.05
Root 48.78 %
Alpha 51.22 %
τ 1.00
τ 1.05
Total Stake Split
τ 7.22M
Root 85.50 %
Alpha 14.50 %
τ 6.17 M
τ 1.05 M
Total Volume (24h)
τ 290.40K
Root 46.72 %
Alpha 53.28 %
τ 135.68 K
τ 154.72 K
48
Neutral
Search by Subnet or Netuid
Rows 10 25 50 100 ALL
Subnet Emission Price 1H 24H 1W 1M Market Cap Volume (24h) Lic
1 Root 0 0% τ 1 ↗ 0.00% ↗ 0.00% ↗ 0.00% ↗ 0.00% τ 6.05M τ 135.68K
2 Chutes 64 9.74% τ 0.101441 ↙ 0.00% ↙ -1.40% ↙ -9.34% ↙ -23.18% τ 241.34K τ 1.21K
3 Ridges 62 5.82% τ 0.062232 ↙ -2.34% ↗ 10.24% ↗ 33.20% ↗ 216.72% τ 146.12K τ 28.83K
4 lium.io 51 5.79% τ 0.058645 ↙ -0.01% ↙ -5.42% ↙ -3.07% ↙ -10.80% τ 120.58K τ 2.72K
5 Targon 4 4.53% τ 0.047307 ↙ -0.04% ↙ -0.69% ↙ -5.55% ↙ -29.43% τ 105.65K τ 356.47
6 templar 3 4.41% τ 0.045989 ↙ -0.05% ↙ -1.09% ↙ -2.86% ↙ -22.26% τ 104.26K τ 401.27
7 Proprietary Trading Network 8 3.92% τ 0.040832 ↙ -0.01% ↙ -1.55% ↙ -3.70% ↙ -12.89% τ 96.42K τ 791.05
8 Gradients 56 3.83% τ 0.039874 ↙ -0.05% ↙ -0.89% ↙ -10.70% ↙ -35.64% τ 91.45K τ 399.56
9 Hone 5 2.18% τ 0.02278 ↙ -0.51% ↙ -0.84% ↙ -5.36% ↙ -19.47% τ 46.58K τ 87.73
10 Dippy Studio 11 2.15% τ 0.022745 ↗ 0.39% ↗ 4.25% ↗ 29.60% ↗ 85.26% τ 45.27K τ 6.77K



https://layerzeroscan.com/application/stargate

Validator/Delegator Dashboards

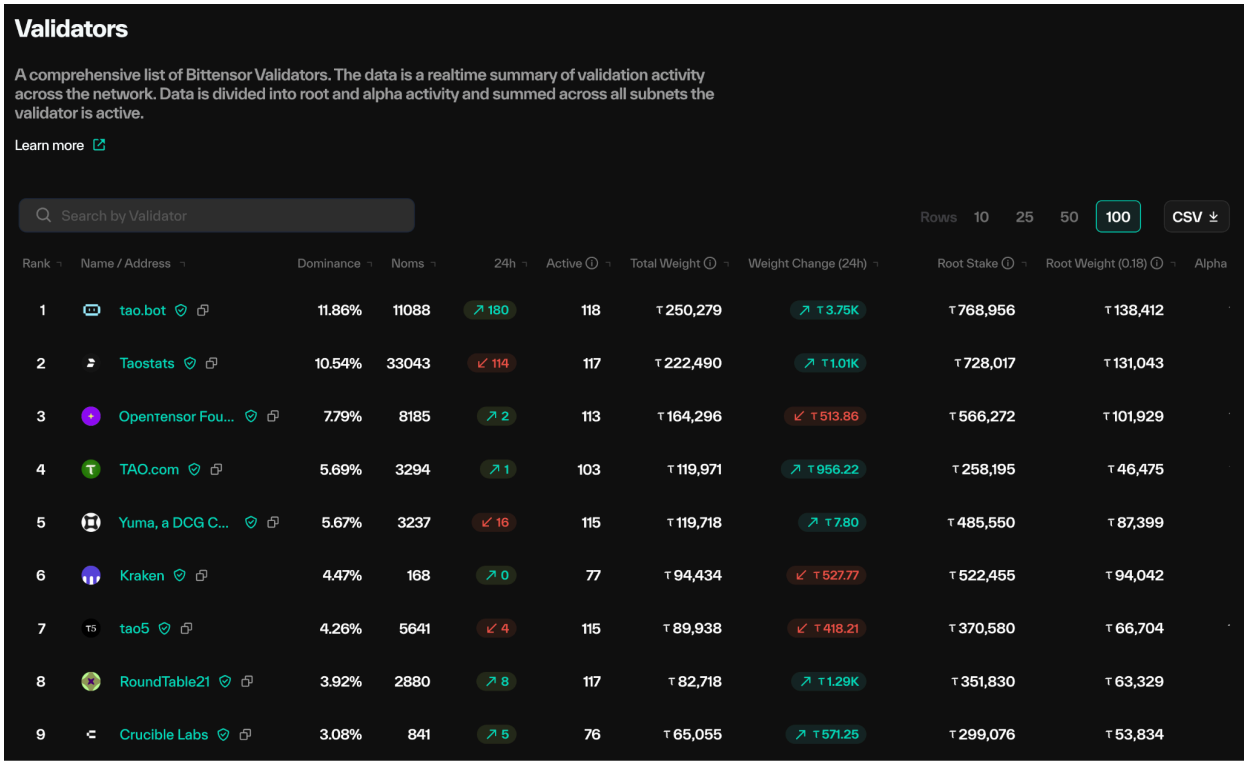
Validator Performance Metrics:

- Portfolio Aggregation: All staking positions across chains in unified dashboard
- Slashing History: Transparent penalty history with severity classifications
- Reward Tracking: Block-by-block reward accumulation with auto-compounding options
- Unstaking Tracking: Track the status of unstakes and present relevant timing information to eliminate any uncertainty

Delegator Management Interface:

- Portfolio Aggregation: All staking positions across chains in unified dashboard
- Reward Tracking: Block-by-block reward accumulation with auto-compounding options

- Performance Benchmarking: Individual performance vs chain averages and top validators
- Unstaking Tracking: Track the status of unstakes and present relevant timing information to eliminate any uncertainty



Validators

A comprehensive list of Bittensor Validators. The data is a realtime summary of validation activity across the network. Data is divided into root and alpha activity and summed across all subnets the validator is active.

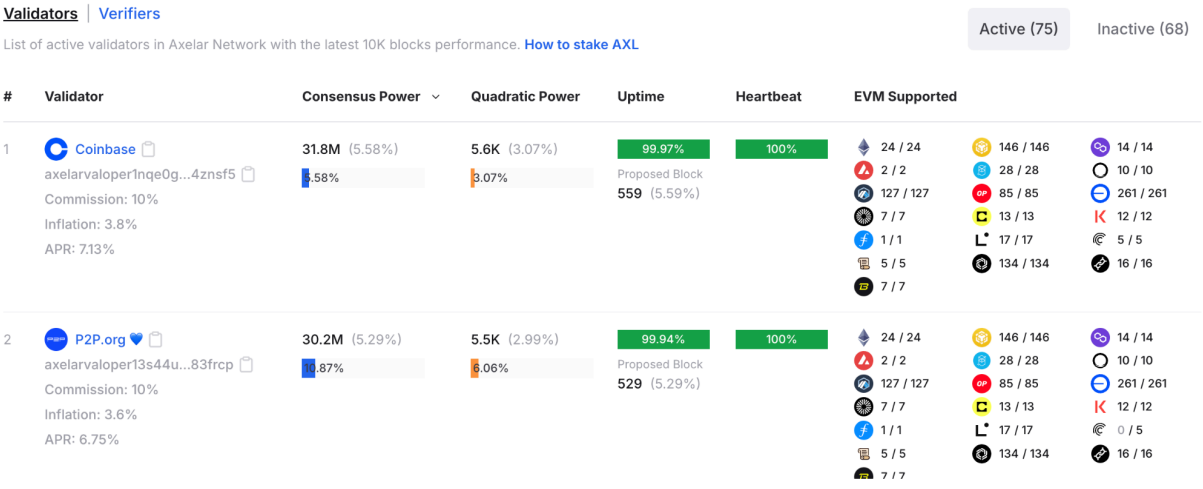
Learn more

Search by Validator

Rows 10 25 50 100 CSV

Rank	Name / Address	Dominance	Noms	24h	Active	Total Weight	Weight Change (24h)	Root Stake	Root Weight (0.18)	Alpha
1	tao.bot	11.86%	11088	↗ 180	118	τ 250,279	↗ τ 3.75K	τ 768,956	τ 138,412	
2	Taostats	10.54%	33043	↙ 114	117	τ 222,490	↗ τ 1.01K	τ 728,017	τ 131,043	
3	Opentensor Fou...	7.79%	8185	↗ 2	113	τ 164,296	↙ τ 513.86	τ 566,272	τ 101,929	
4	TAO.com	5.69%	3294	↗ 1	103	τ 119,971	↗ τ 956.22	τ 258,195	τ 46,475	
5	Yuma, a DCG C...	5.67%	3237	↙ 16	115	τ 119,718	↗ τ 7.80	τ 485,550	τ 87,399	
6	Kraken	4.47%	168	↗ 0	77	τ 94,434	↙ τ 527.77	τ 522,455	τ 94,042	
7	tao5	4.26%	5641	↙ 4	115	τ 89,938	↙ τ 418.21	τ 370,580	τ 66,704	
8	RoundTable21	3.92%	2880	↗ 8	117	τ 82,718	↗ τ 1.29K	τ 351,830	τ 63,329	
9	Crucible Labs	3.08%	841	↗ 5	76	τ 65,055	↗ τ 571.25	τ 299,076	τ 53,834	

https://taostats.io/validators



Validators | Verifiers

List of active validators in Axelar Network with the latest 10K blocks performance. How to stake AXL

Active (75) Inactive (68)

#	Validator	Consensus Power	Quadratic Power	Uptime	Heartbeat	EVM Supported
1	Coinbase axelarvaloper1nqe0g...4znsf5 Commission: 10% Inflation: 3.8% APR: 7.13%	31.8M (5.58%) 5.58%	5.6K (3.07%) 3.07%	99.97% Proposed Block 559 (5.59%)	100%	24 / 24, 2 / 2, 127 / 127, 7 / 7, 1 / 1, 5 / 5, 7 / 7 146 / 146, 28 / 28, 85 / 85, 13 / 13, 17 / 17, 134 / 134 14 / 14, 10 / 10, 261 / 261, 12 / 12, 5 / 5, 16 / 16
2	P2P.org axelarvaloper13s44u...83frcp Commission: 10% Inflation: 3.6% APR: 6.75%	30.2M (5.29%) 10.87%	5.5K (2.99%) 6.06%	99.94% Proposed Block 529 (5.29%)	100%	24 / 24, 2 / 2, 127 / 127, 7 / 7, 1 / 1, 5 / 5, 7 / 7 146 / 146, 28 / 28, 85 / 85, 13 / 13, 17 / 17, 134 / 134 14 / 14, 10 / 10, 261 / 261, 12 / 12, 0 / 5, 16 / 16

https://axelarscan.io/validators

Chain Discovery Systems

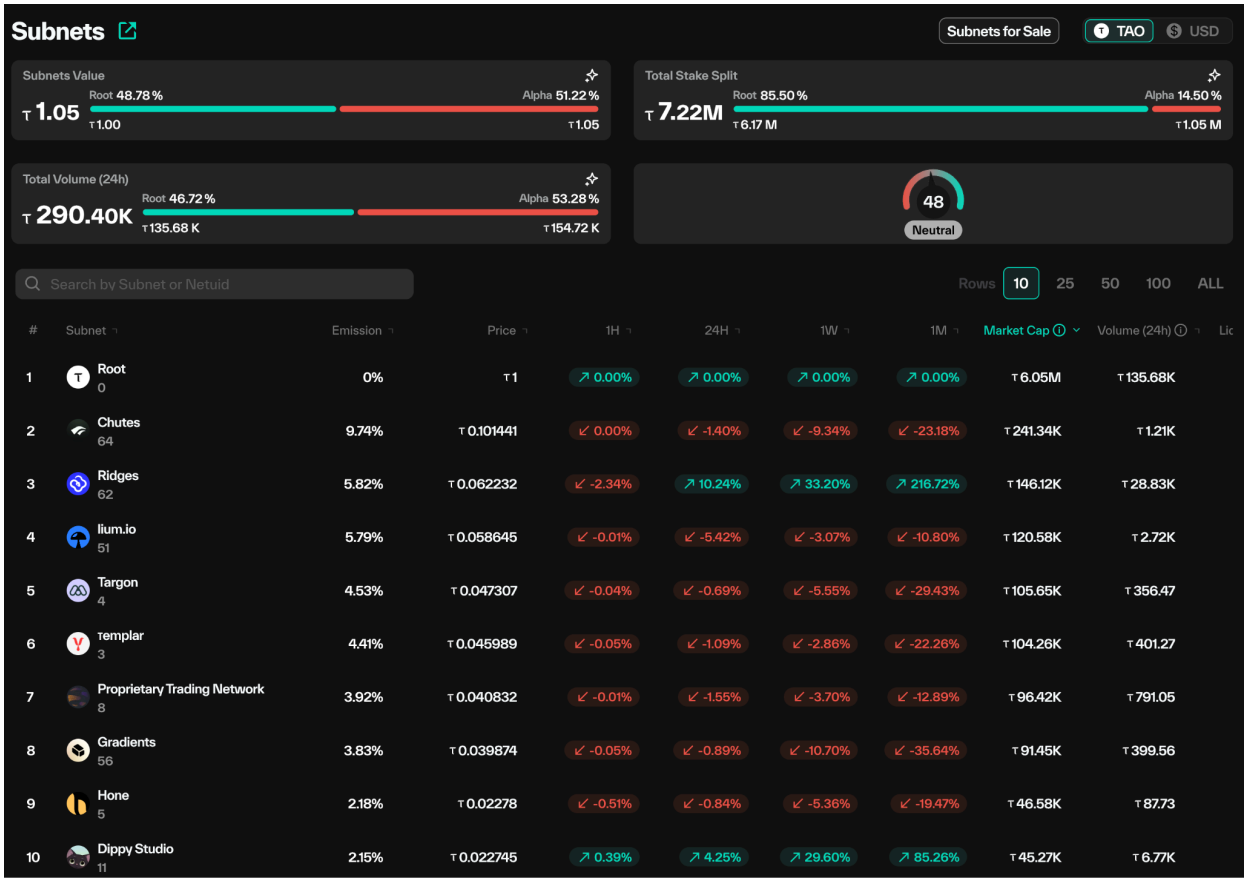
Ranking Methodologies:

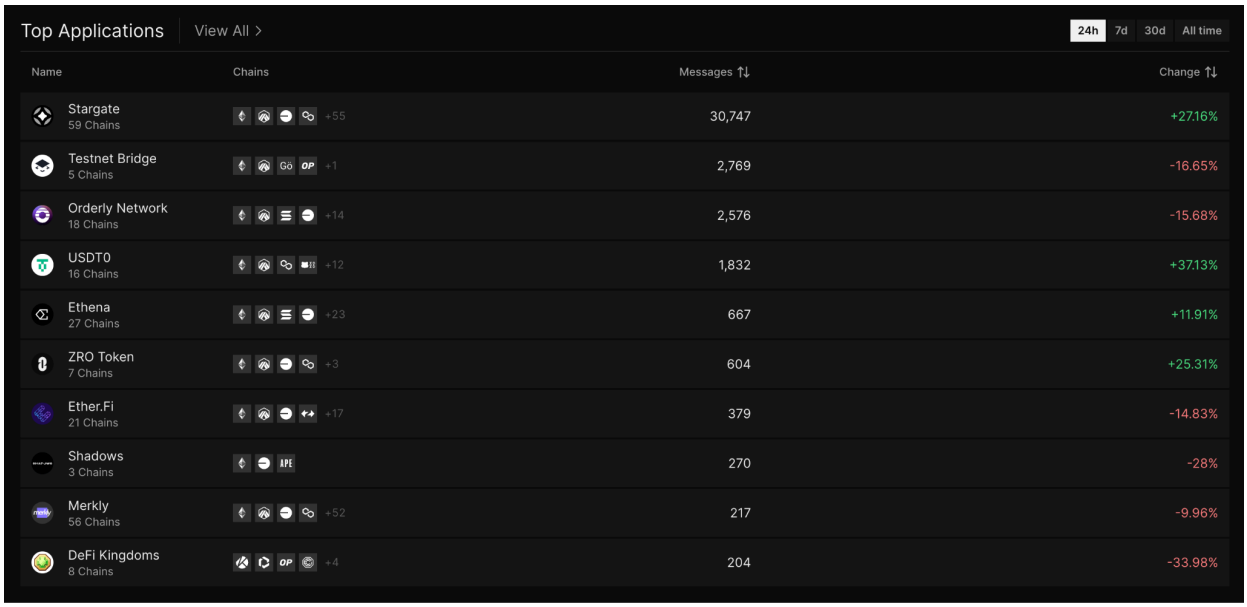
1. Total Economic Security: Ranked by total CNPY staked across all validators
2. Trending Chains: Velocity-based ranking showing fastest-growing stake amounts
3. New Chain Discovery: Recently launched chains with liquidity bootstrapping metrics
4. LP Optimization: Rankings with based on highest LP fees
5. Developer Activity: GitHub commits, module usage, community engagement scores

Technical Implementation:

- Real-Time Data Aggregation: Sub-second updates for critical staking metrics
- Multi-Source Validation: Cross-reference data from multiple node endpoints
- Historical Trending: 7-day, 30-day, and 90-day trend analysis

Example:





Sitemap

- Dashboard
  - Staking
    - Validators
    - Delegators
  - Nested Chains
  - Blockchain
    - Blocks
    - Transactions
    - Staking (redirects to Staking)
    - Accounts
    - Analytics
  - Wallet
    - Transfer
      - Send
      - Receive
    - Stake
      - Validators
      - Delegation
    - Provide Liquidity
  - Governance
    - Dashboard: Active / Past proposals
  - Launch
    - Launch a Chain (browse templates, copy to repo)
    - Support Launches (Launch discovery tool)

3.2 User Stories & Acceptance Criteria

User Story 3: As a staker, I want to discover the most profitable staking opportunities across all Nested Chains.

- Given a user opens the staking discovery interface
- When they filter by rewards and risk
- Then they see ranked opportunities with real-time fee opportunities
- And can simulate staking amounts with slippage estimates
- And have one-click delegation through integrated wallet

User Story 4: As a validator operator, I want to monitor my performance across multiple Nested Chains.

- Given a validator connects their validator addresses
- When they access the validator dashboard
- Then they see unified performance metrics across all operated chains

3.3 Integration Points

Launchpad Integration:

- New Chain Monitoring: Automatically track and display newly launched chains
- Launch Success Metrics: Monitor chain bootstrapping progress and validator onboarding
- Community Building: Connect chain launchers with potential validators and stakers

AMM Integration:

- Yield Farming Opportunities: Identify chains offering both staking and LP rewards
- CNPY Flow Analysis: Track CNPY movement between staking and liquidity provision

4. Component 3: Canopy-Routed Liquidity (AMM)

4.1 ELI5

1. A system that allows users to discover and trade easily between chains with minimal fees and costs
2. A system that displays relevant information to inform users of what they are trading and allows them to understand prior trading history

4.2 Feature Requirements

Two-Sided Pools with Native Token Strategy

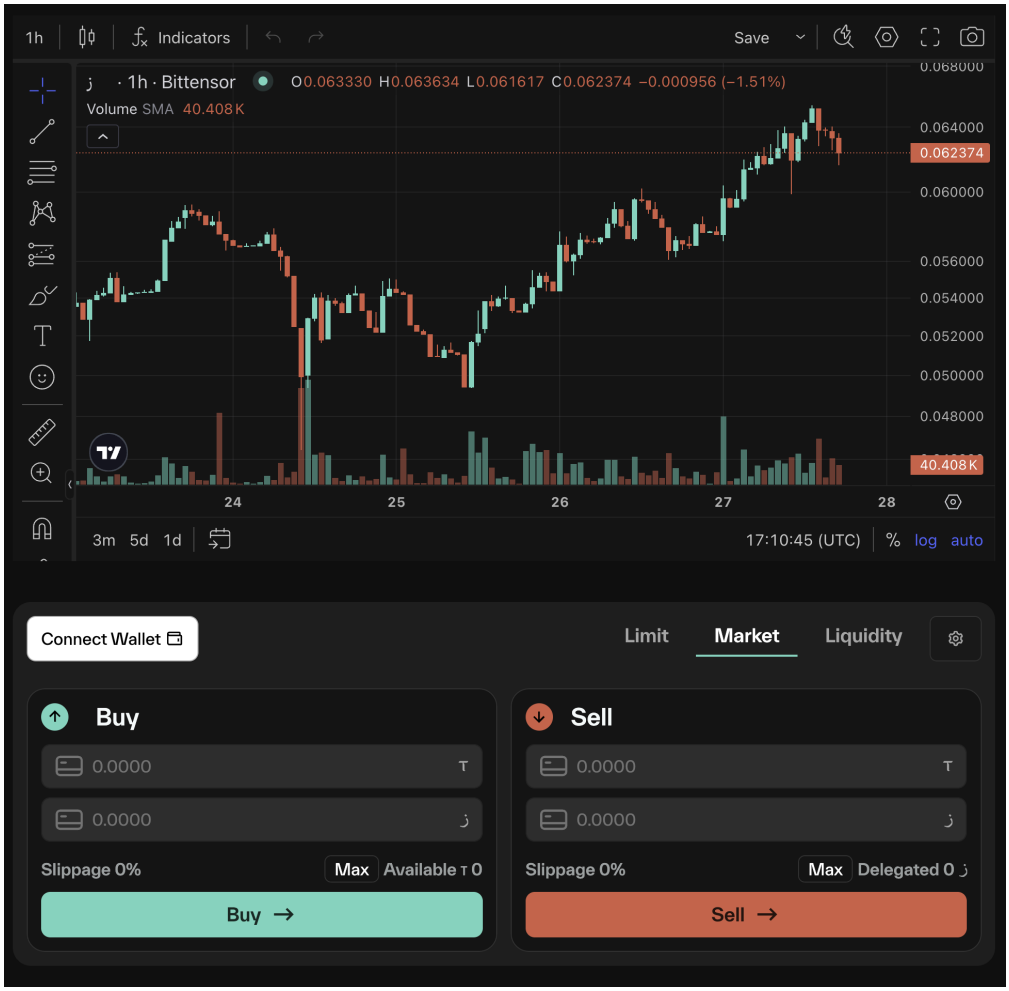
CNPY Hub Model Implementation:

- Universal Pairing: Every liquidity pool pairs external assets with CNPY

- Continuous Liquidity: Always available buy/sell opportunities through bonding curve mechanics

Pool Architecture:

- Dynamic Fee Structures: Simple fees based on % of transaction fees



LP Mechanisms and Fee Distribution

Fee Distribution Model:

- Base Trading Fees: 0.3% per swap (similar to Uniswap standard)
    - 0.25% to liquidity providers (83.3%)
    - 0.05% to CNPY treasury/burn mechanism (16.7%)
- Dynamic Fee Adjustment: Governance-controlled fee parameters based on market conditions
- Additional Rewards: CNPY/Native token subsidization for strategic pool incentivization

Price Discovery Tools

Single Interface Multi-Chain Trading

User Experience Features:

- Chain Abstraction: Users select assets without worrying about underlying chains
- Automatic Network Switching: Wallet automatically switches to optimal chain for each trade
- Cross-Chain Swap Routing: Multi-hop swaps across chains

4.2 User Stories & Acceptance Criteria

User Story 5: As a trader, I want to swap between any assets across Nested Chains without managing multiple chains manually.

- Given a user wants to swap Asset A on Chain 1 for Asset B on Chain 2
- When they select both assets in the swap interface
- Then the system automatically calculates optimal routing through CNPY pairs
- And executes cross-chain swap with single approval
- And provides real-time transaction tracking across all chains

User Story 6: As a liquidity provider, I want to maximize yields by providing liquidity across multiple chains.

- Given a user has assets to provide as liquidity
- When they access the liquidity provision interface
- Then they see yield opportunities ranked
- And can provide liquidity to multiple pools with single transaction

4.3 Integration Points

Launchpad Integration:

- Automatic Pool Creation: New chain tokens automatically get CNPY pairs
- Launch Liquidity: Seamless transition from bonding curves to AMM pools
- Bootstrap Incentives: Extra CNPY rewards for early liquidity providers

Explorer Integration:

- Liquidity Analytics: Show pool TVL and volume in chain ranking metrics
- Yield Correlation: Display relationship between chain performance and liquidity rewards
- Staking-LP Optimization: Compare returns between staking and liquidity provision

5. On/Off Ramp Interfaces

5.1 ELI5

1. A system that allows users to trade large order sizes easily between chains with minimal fees and costs
2. An alternative to AMMs with potentially large amounts of slippage for large orders

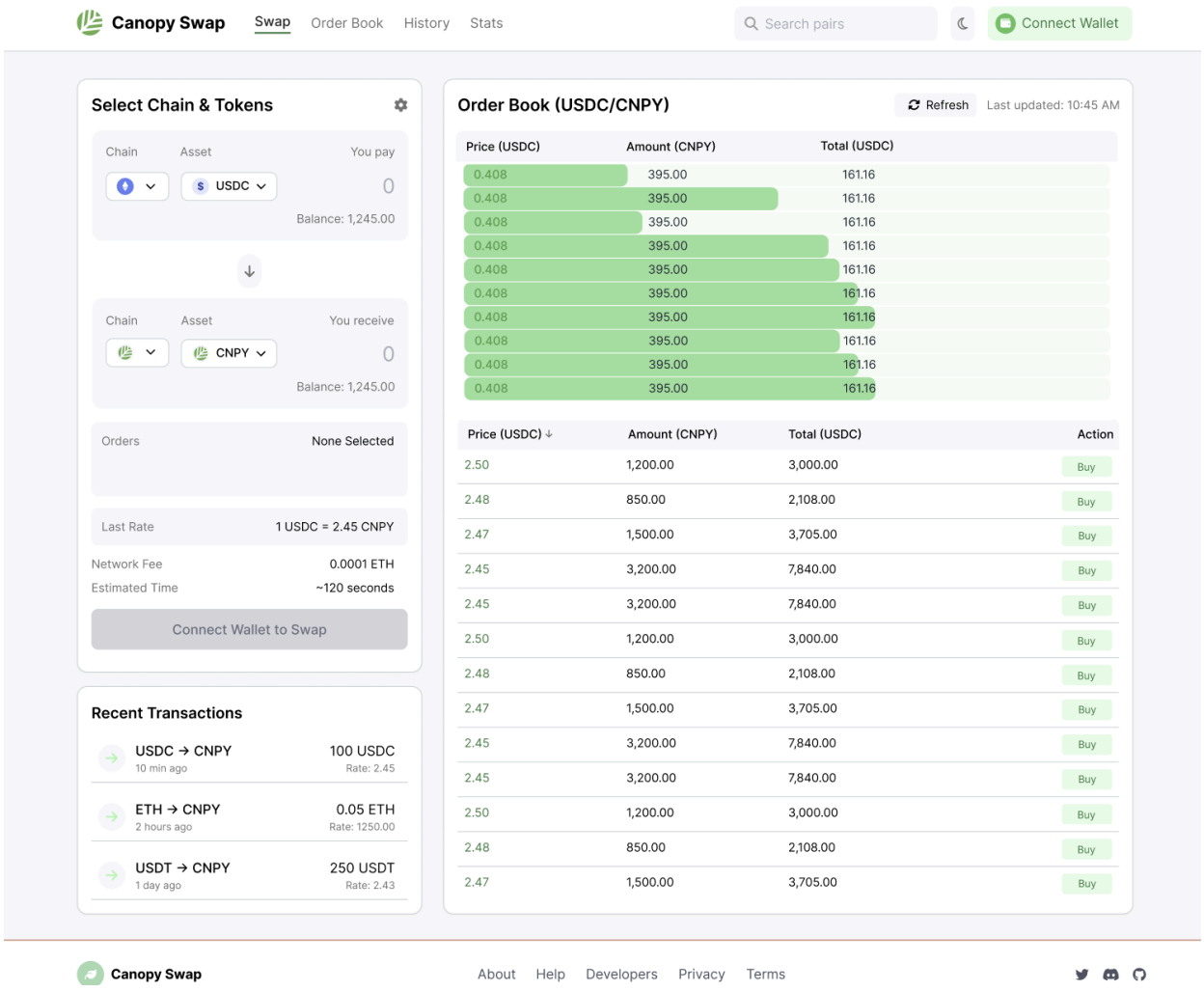
5.2 Feature Requirements

Atomic Swap Order Book System:

- One-Sided Order Books: Sell-only order books where users list CNPY for USDC/USDT
- Cross-Chain Support: Primary focus on Ethereum and Solana USDC/USDT
- Order Aggregation: Users can buy from multiple orders to fulfill desired amount
- Atomic Execution: Cross-chain atomic swaps ensure trustless execution
- Price Discovery: Market-driven pricing through competitive order placement

Order Book Interface Features: (see Albin's implementation)

- Real-Time Order Display: Live order book showing price levels and available liquidity
- Order Grouping: Aggregate orders at same price levels for visual clarity
- Depth Visualization: Color-coded depth chart showing liquidity distribution
- One-Click Buying: Select multiple orders and execute in single workflow (may need to sign multiple transactions)



Technical Implementation:

- Oracle-based Architecture: Leverages Canopy's swap chain to enable atomic swapping
- No Partial Fill Support: Doesn't allow for partial order execution for large trades

Supported Pairs:

- Primary Pairs:
  - Ethereum USDC/CNPY
  - Ethereum USDT/CNPY
  - Solana USDC/CNPY
  - Solana USDT/CNPY
- Secondary Pairs: Nested Chain tokens/CNPY (lower priority)

5.2 User Stories & Acceptance Criteria

User Story 5: As a trader, I want to swap between any assets across Nested Chains.

- Given a user wants to swap Asset A on Chain 1 for Asset B on Chain 2
- When they select both assets in the swap interface
- Then the system automatically calculates optimal routing through CNPY pairs
- And executes cross-chain swap
- And provides real-time transaction tracking across all chains

User Story 6: As a maker, I want to sell tokens.

- Given a user has assets
- When they access the interface they enter a sell order
- That order is locked and fulfilled
- (If necessary) The order is edited or cancelled
- Order is fulfilled by a taker without the intervention of the maker

5.3 Integration Points

Explorer Integration:

- Liquidity Analytics: Show open interest and volume in chain ranking metrics

6. Component 4: Cross-Chain Wallet

6.1 Feature Requirements

Multi-Wallet Management within Single Interface

Account Architecture:

- Hybrid Approach: Single seed phrase generates addresses across all supported chains + multi-wallet aggregation
- Hardware Integration: Native support for Metamask and Canopy wallets
- Account Abstraction: Simplified UX with underlying complexity abstraction

Multi-Account Features:

- Unified Balance View: Aggregate balances across all accounts and chains in single dashboard
- Cross-Account Operations: Transfer assets between different accounts and chains
- Unified Send Interface: Single form for sending to any Canopy chain
- Account Labeling: Custom names and categorization for different accounts/purposes
- Watch-Only Addresses: Monitor external addresses without importing private keys

Cross-Chain Portfolio Views

Portfolio Aggregation:

- Real-Time Updates: 5-second balance updates across all supported chains
- DeFi Position Tracking: Automatic detection of LP positions, staked assets, lending positions
- Historical Performance: Time-series portfolio analytics with P&L calculations

Visualization Features:

- Asset Allocation Charts: Visual breakdown by chain, protocol, asset type

Staking/Validator Management Directly from Wallet

Integrated Staking Interface:

- Validator Discovery: Browse and evaluate validators across all supported chains
- Unstaking Management: Clear unstaking timelines and penalty calculations

Advanced Features:

- Multi-Chain Staking: Stake across multiple chains with unified management
- Validator Performance: Track validator performance and automatically redelegate underperformers
- Governance Integration: Vote on proposals directly from staking interface

Governance Proposal Voting Interfaces

Governance Dashboard:

- Multi-Chain Proposals: Unified view of governance proposals across all chains
- Proposal Analysis: AI-powered proposal summaries and impact assessments
- Voting Power Calculation: Real-time voting power based on staked amounts
- Delegate Management: Assign voting power to trusted delegates with override capabilities

Voting Features:

- Informed Voting: Access to proposal discussions, expert opinions, and community sentiment
- Batch Voting: Vote on multiple proposals simultaneously
- Voting History: Track voting participation and outcomes
- Notification System: Alerts for new proposals and voting deadlines

Key Import/Export Security Best Practices

Key Management Features:

- Verification: Multiple verification steps during wallet creation

Activity Timeout and Security Features

Session Management:

- Adaptive Timeouts: Longer timeouts for reading, shorter for transactions
- Auto-Lock: Automatic wallet locking after inactivity periods

6.2 User Stories & Acceptance Criteria

User Story 7: As a multi-chain user, I want to manage all my crypto assets from a single interface without switching between different wallets.

- Given a user has assets across 5 different blockchains
- When they open the wallet interface
- Then they see unified portfolio view with all assets and positions
- And can perform transactions across chains without manual network switching
- And receive consolidated notifications for all wallet activities

User Story 8: As a governance participant, I want to stay informed about and vote on proposals across all chains where I hold voting power.

- Given a user has staked tokens across multiple chains
- When they access the governance dashboard
- Then they see all active proposals ranked by voting power and deadline
- And can read AI-generated proposal summaries and impact analyses
- And can vote on multiple proposals with single authentication

6.3 Integration Points

All Component Integration:

- Unified Authentication: Single wallet session across all super app components
- Cross-Component Transactions: Seamlessly move between staking, trading, and chain management
- Activity Feed: Unified transaction and activity history across all components
- Notification Hub: Centralized alerts for staking rewards, trading opportunities, governance proposals

7. User Journey Integration

Developer Journey: Template → Chain Launch → Ecosystem Growth

Phase 1: Discovery & Planning

- Browse template directory with filtering by language and use case

- Access comprehensive documentation and tutorials

Phase 2: Customization & Development

- GitHub integration for custom code repositories and CI/CD pipeline setup
- Mainnet deployment with automated testing suite and performance benchmarks
- Community (team) peer review process for complex chains

Phase 3: Launch & Bootstrap

- One-click deployment to a virtual chain
- Listing on the Launchpad
- Live trading leading to graduation
- Deployment of the chain to a single validator
- Automatic CNPY AMM liquidity pool creation
- Real-time launch metrics and performance monitoring (via cross-chain explorer)

Phase 4: Growth & Management

- Chain analytics dashboard with usage, validator, and economic metrics
- Governance proposal system for chain parameter updates

Staker Journey: Discovery → Delegation → Optimization

Phase 1: Opportunity Discovery

- Multi-chain staking opportunity dashboard with yield rankings
- Education about different staking mechanisms and risks (slashing vs non-slashing)
- Community sentiment analysis (volume or staking-based)

Phase 2: Due Diligence & Selection

- Comprehensive validator analysis with performance history
- Slashing history and uptime monitoring

Phase 3: Delegation & Management

- One-click delegation
- Portfolio dashboard showing all staking positions across chains
- Automated reward compounding (autocompounding)

Phase 4: Optimization & Rebalancing

- Cross-chain yield farming opportunities combining staking and LP rewards
- Tax-optimized claiming strategies with automated reporting

Trader Journey: Asset Discovery → Liquidity Provision → Yield Optimization

Phase 1: Market Analysis

- Cross-chain asset discovery with comprehensive market data and analytics
- Liquidity pool analysis tools
- Market sentiment indicators and trading volume trend analysis
- Educational content about AMM mechanics

Phase 2: Strategy Planning

- Yield farming comparison across different protocols

Phase 3: Execution & Provision

- Single-interface trading across all supported chains
- Simplified liquidity provision with automatic position sizing

Phase 4: Management & Optimization

- Risk monitoring (up to the user) and position adjustment options with comprehensive market data and analytics

Validator Journey: Setup → Operations → Community Building

Phase 1: Growth & Optimization

- Performance analytics with benchmarking against other validators
- Cross-chain validator operations with unified management dashboard

Phase 2: Ecosystem Leadership

- Governance participation with proposal creation and voting tools
- Community leadership programs with reputation and reward systems