NODES

the _paper

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The 0x_nodes Project

INTRODUCTION

The 0x_nodes project was created to act as a single point of entry into the Decentralized Finance (DeFi) space. The 0x_nodes project has created a protocol to aggregate available yield from multiple sources while also mitigating, and offloading risk.

On 0x_nodes, users stake the native assets of the supported blockchains to earn native asset rewards. Users choose from a variety of investment strategies to stake their assets on. The system deploys user funds to the underlying investment strategies in batches, resulting in cost savings. The 0x_nodes protocol periodically distributes rewards back to the users as claimable native assets and provides users with the option of automatically reinvesting yield. Users can also stake the $BIOS token to earn rewards in the form of native assets. 0x_nodes will deploy a new algorithmic token, $cxsBIOS, to serve as a value-adding derivative to $BIOS, beginning the deployment of technologies such as veTokenomics, on-chain governance, staking, and other utility for $BIOS.

The project makes it extremely convenient for users to draw yield from numerous decentralized exchanges and blockchains in one place. Traditional DeFi platforms lack a cross-chain interface that allows free exchange of native assets between non-native environments.

Users often move assets from Ethereum mainnet to remote chains for deployment, which is slow and expensive. Users also have to spend valuable time staying up-to-date with multiple yield sources on alternative chains, an exercise which takes time and inevitably results in lost opportunities.

The **technology** behind 0x_nodes is a set of modularized smart contracts designed to allow for rapid development and easy deployment of new features.

The **philosophy** of 0x_nodes is to emphasize strong community engagement, open source development, and easy integration and upgrades of the underlying technology.

This document provides the 0x_nodes vision.

Overview of 0x_nodes technology

SYSTEM11

System11 is the decentralized application (dApp) that serves as a **terminal** via which users can access functionality of the 0x_nodes ecosystem. Through this terminal, the user is able to deploy funds to multiple blockchain networks.

Once a user has deployed funds into the kernel running on their local RPC network, they may deploy those assets to any blockchain supported by the 0x_nodes network. This integrated transport functionality enables users to move non-native assets between chains, easily and at low cost.

0x_nodes provides a menu of options to users for deploying their assets into yield-bearing strategies. 0x_nodes aggregates yield for users from multiple remote sources, namely liquidity pools on decentralized exchanges (DEX), as well as local sources, such as the $BIOS protocol fee accrual system, while reducing risks of providing liquidity.

In short, the System11 dApp allows users to interface with the entire 0x_nodes ecosystem, optimizing their yield-bearing strategies across multiple blockchains in one place.

THE KERNEL

On each blockchain, the 0x_nodes protocol is powered by a **kernel**. The **kernel** is a set of smart contracts that are designed to facilitate easy hand off between the depositor and the yielding strategies.
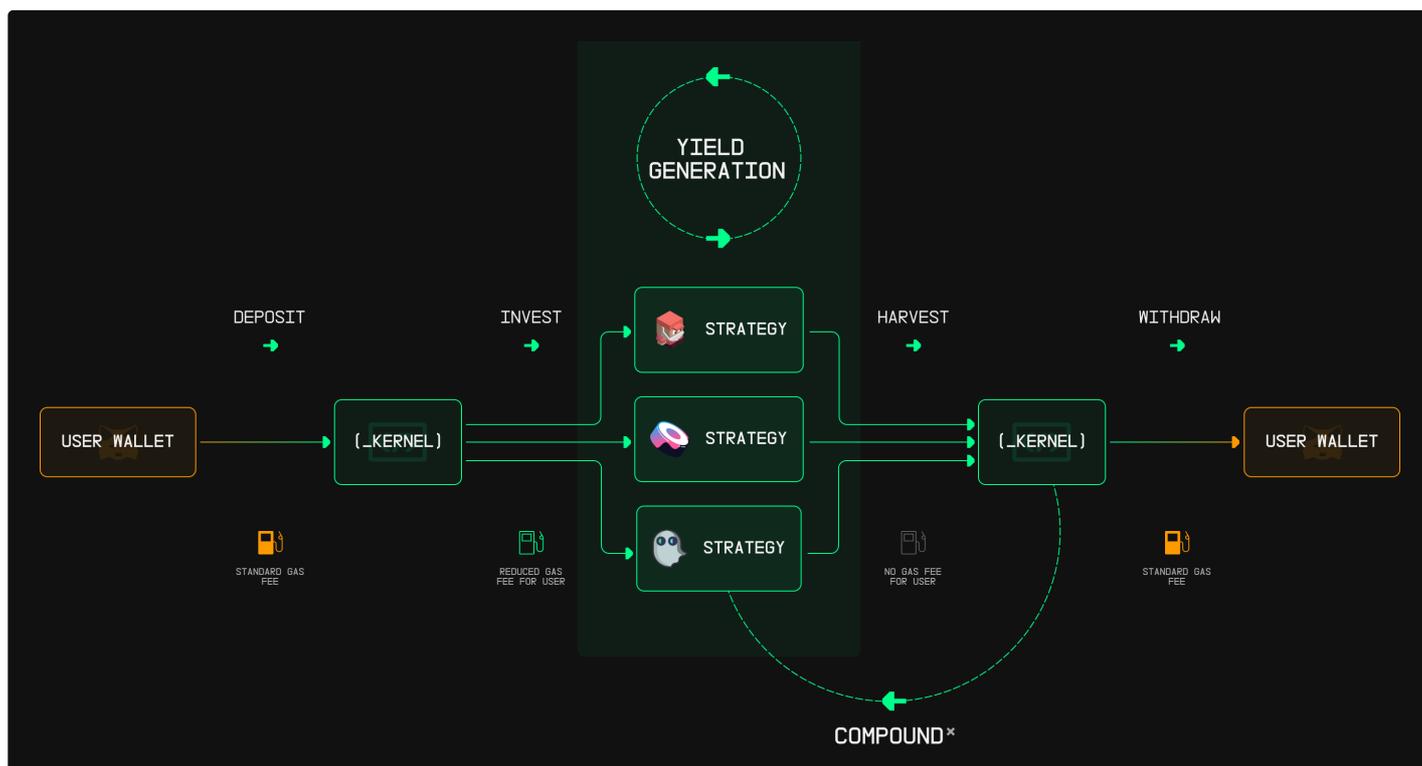
From the user's perspective, the kernel facilitates the deposit of assets from their wallet into the 0x_nodes ecosystem, the selection of one or more investment options from a menu of yield-bearing investment **strategies**, and the harvest of yield back into the kernel where it can be deployed (compounded) or withdrawn.

Each 0x_nodes strategy deploys funds into multiple high-performing liquidity pools on an automated market maker (AMM), such as Uniswap, Sushiswap, and others. 0x_nodes strategies are multiple-farm (often "3-farm") strategies, meaning that users' funds are split and deployed into multiple liquidity pools.
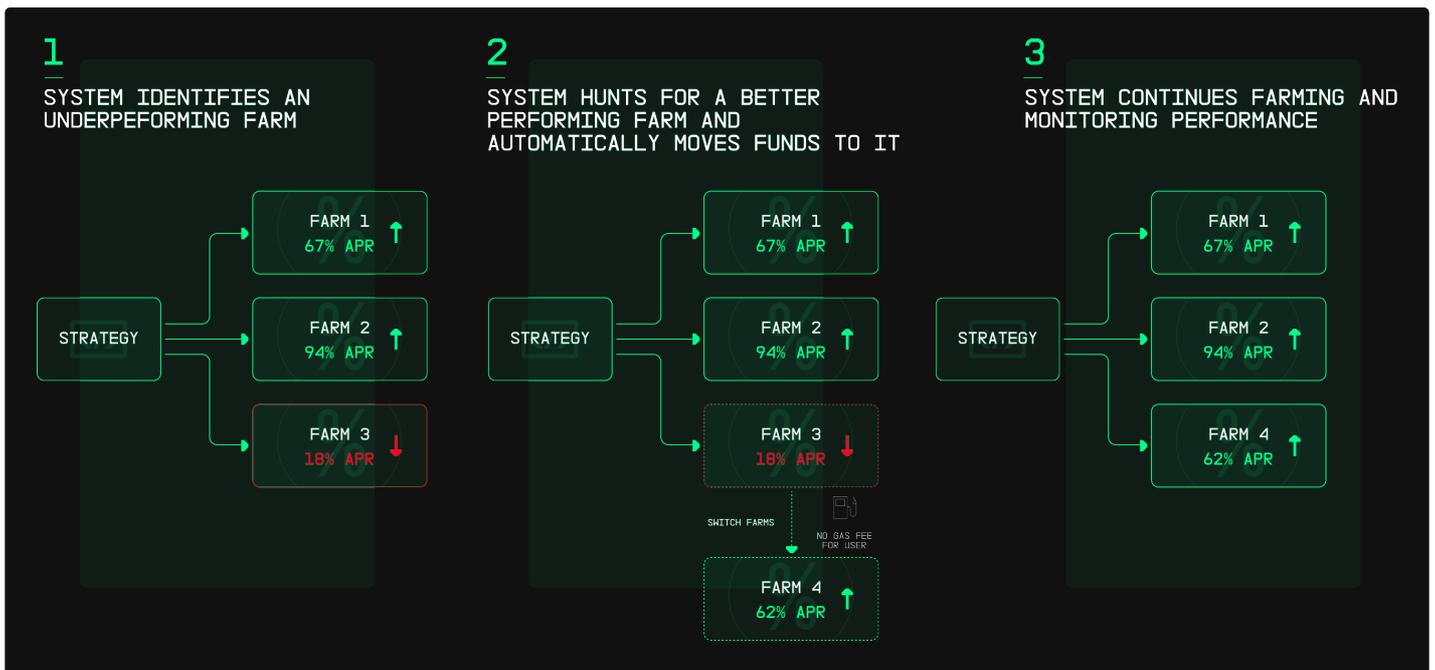
Every time 0x_nodes develops an integration that connects its ecosystem to DEX or blockchain, it facilitates cross-pollination of communities, co-marking opportunities, and allows the 0x_nodes community itself to grow while providing liquidity to DEX.

AUTOPOOLER

The 0x_nodes **autopooler** is a system that proactively monitors 0x_nodes strategies and re-allocates assets to better investment opportunities. In a sense, the autopooler acts as a hunter-seeker looking for the best opportunities available on market, while also maintaining overall health of the strategies.

The autopooler operates this function through a module in the 0x_nodes data layer that constantly monitors the performance of the existing strategies and compares them to new investment opportunities across the network. The autopooler thus helps 0x_nodes maintain the best-of-breed yield sources on each chain.

1

SYSTEM IDENTIFIES AN
UNDERPEFORMING FARM

STRATEGY	FARM 1 67% APR ↑
	FARM 2 94% APR ↑
	FARM 3 18% APR ↓

2

SYSTEM HUNTS FOR A BETTER
PERFORMING FARM AND
AUTOMATICALLY MOVES FUNDS TO IT

STRATEGY	FARM 1 67% APR ↑
	FARM 2 94% APR ↑
	FARM 3 18% APR ↓

SWITCH FARMS   NO GAS FEE FOR USER

FARM 4 62% APR ↑

3

SYSTEM CONTINUES FARMING AND
MONITORING PERFORMANCE

STRATEGY	FARM 1 67% APR ↑
	FARM 2 94% APR ↑
	FARM 4 62% APR ↑

$BIOS TOKENOMICS

The 0x_nodes native token is $BIOS. Users can stake $BIOS on any chain to earn native asset rewards. For example, an Ethereum user who stakes $BIOS will earn $ETH rewards.
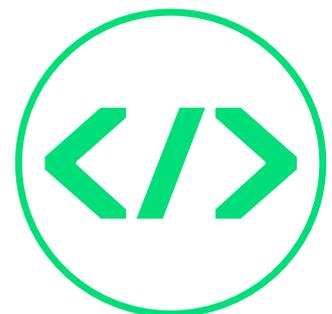
```
$BIOS MARKET CAP $11.3M
TOTAL SUPPLY 10,000,000
AVAILABLE ON 6 CHAINS
PUBLIC FUNDING ROUND COMPLETED MAY 2021
PRIVATE ROUND COMPLETED IN OCT 2021
STRATEGIC ROUND COMPLETED IN NOV 2021
```


Users who stake $BIOS earn new rewards every time the protocol harvests yield. On a chain-by-chain basis, the protocol's yield-harvesting processor periodically harvests and liquidates yield accrued from 0x_nodes strategies. A portion of the yield collected from every strategy harvested on a chain is rewarded to users who stake $BIOS on that chain. Each user's rewards are proportional to the share of $BIOS they have staked on that chain.

$$\text{NATIVE ASSET YIELD} = \text{STRATEGYYIELD} \times \text{STRATEGYPFAWEIGHT} \times \left(\frac{\text{BIOS STAKED BY USER}}{\text{TOTAL BIOS STAKED}} \right)$$

The $BIOS token is available on every chain supported by 0x_nodes. At the time of writing, $BIOS can be purchased on-market with 5 of the leading automated market makers. Users can also bridge $BIOS across-chains using 3rd-party protocols.

LIQUID STAKED TOKEN

When users deposit native assets, the kernel will issue a **protocol-owned** liquid staked token (LST) that allows for a seamless user experience when interacting with a 0x_nodes kernel. This token is **owned by the protocol**, and issued as credit to the end user via an internal accounting mechanism. Put another way, users who deposit native assets serve as lenders to 0x_nodes (users loan the kernel assets, the kernel deploys the assets, and users earn interest). This credit facility is utilized to deploy assets throughout the cross-chain 0x_nodes network.

THE 0X_NODES PROTOCOL USES A SHELL-WRAPPED TOKEN TO PRODUCE LIQUID STAKING TOKENS AS DEBT COLLATERAL FOR KERNEL DEPOSITS

This allows an individual 0x_nodes kernel to collateralize itself with this LST method in the form of syn[base_token] (eg. synETH on ETH ; synFTM on FTM). The synthetic assets minted by any individual kernel are what provides liquidity to a synthetic credit network (next page).

The 0x_nodes kernel separates the user deposits from liquidity operations by providing liquidity to users, allowing them to exit their position, gracefully. This separation also further secures the liquidity operations from malicious intent by preventing direct engagement with protocol-owned liquidity.

During any 0x_nodes kernel deployment the protocol must go through an initialization period in which it warms liquidity and the protocol becomes operational. During this time period the stable AMM (sAMM) collateralization level will be 80:20

towards liquidity operations, and sAMM synthetic:base liquidity.

The kernel's core function will be to supply the sAMM market with the counterparty to restabilize any unstable peg inside the 0x_nodes network. Yield generated from liquidity operations, paired with credited synthetics inside the protocol, create an opportunity for the protocol itself to create yield.

The sAMM pool will generate a large quantity of yield due to the constant destabilization and restabilization of the LST liquidity. Through the use of strategic incentives, the protocol will drive demand to the LST markets while simultaneously also supplying the market with the assets required to restabilize the peg of any LST inside the 0x_nodes network.
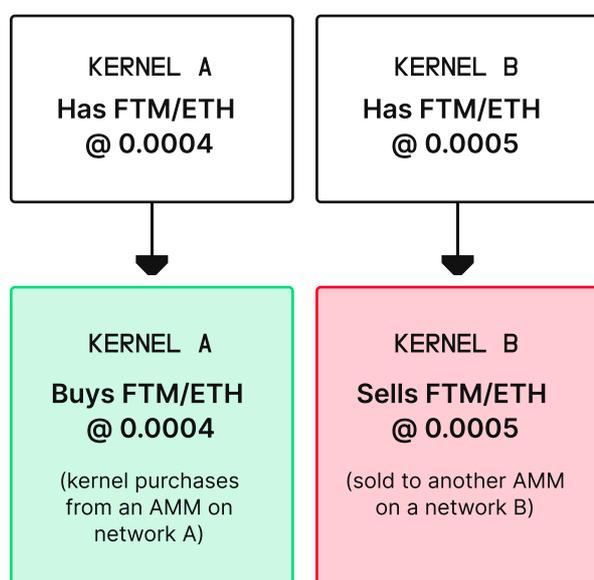
SYNTHETIC CREDIT NETWORK

The 0x_nodes network of interoperable kernels allows for a "synthetic credit network" to exist among the 0x_nodes kernels on different blockchains. The synthetic credit network allows any operational kernel inside the 0x_nodes network to issue debt or credit from anywhere in the network.

THE SYNTHETIC CREDIT NETWORK IS CROSS-CHAIN LIQUIDITY THAT WILL ALLOW THE FREE FORM MOVEMENT OF ASSETS BETWEEN CHAINS.

Through this fluid network of liquidity, yielding from cross-chain arbitrage opportunities becomes a reality.

KERNEL A
Has FTM/ETH
@ 0.0004

KERNEL B
Has FTM/ETH
@ 0.0005

KERNEL A
Buys FTM/ETH
@ 0.0004
(kernel purchases from an AMM on network A)

KERNEL B
Sells FTM/ETH
@ 0.0005
(sold to another AMM on a network B)

Through the issuance of debt and credit Kernel A and B on different chains will have access to reserve assets on the local chain in order to accomplish the arbitrage. The continual redistribution and composition of liquidity throughout the 0x_nodes network will be rebalanced through the synthetic credit network.

For a user of the 0x_nodes terminals, this will eliminate the need to reconfigure, add, or change RPC networks, since all native settlement layer assets will be available once inside the network.

With each kernel issuing its own synthetic asset, the synthetic credit network allows for free movement of any asset deposited into the kernel. The cross–chain opportunity is that now users can deposit ETH into the ETH RPC network and move assets between kernels (e.g., from the ETH kernel to the FTM kernel). As a result, users can send and immediately enter assets to strategies on remote chains.

$CXSBIOS

0x_nodes will deploy a new token, $cxsBIOS, and a new set of smart contracts adding modern tokenomics to the cross-chain BIOS ecosystem. The $cxsBIOS token is intended to be a value-adding derivative to $BIOS, beginning the deployment of technologies such as veTokenomics, on-chain governance, staking, and other utility for BIOS.

CROSS-CHAIN STAKED BIOS ($CSXBIOS) — AN ALGORITHMIC REBASING TOKEN BASED ON TOTAL SUPPLY OF $BIOS ON THE LOCAL NETWORK

The tokenomics of $cxsBIOS are rooted in the notion that as $BIOS migrates across chains, the various networks will have differing local supply. This creates an efficient driver for an algorithmic token whereby the supply of $cxsBIOS is a function of the supply of $BIOS on that chain.

The wrapping mechanism will act on a variable timebase function for release of assets. This allows users to receive $cxsBIOS for a time-locked deposit of $BIOS. Users may participate in on-chain governance decisions, and also receive yield when cross-chain activities result in increased supply or demand of the $BIOS token. $cxsBIOS can be used and staked in the local chain's BIOS PFA system, and it can be modified to have additional functionality.

Additional Technical Details

YIELD HARVEST AND DISTRIBUTION

Users earn yield by providing liquidity to a strategy or by staking the 0x_nodes platform token, $BIOS, in the kernel. New yield is distributed to the user each time yield is harvested from the 0x_nodes strategies. The 0x_nodes "yield harvester" is the smart contract that distributes yield to users as claimable native assets. Users manage their rewarded yield through the 0x_nodes system11 dApp (e.g., view yield, claim/withdrawal yield, or enter yield into a strategy).

The yield harvester distributes yield into four proportions, based on distribution weights set in the YieldManager contract:

Strategy Rewards: % of yield distributed to the holders of a given strategy, in the form of native assets. Users who deposit native assets into strategies receive the largest proportion of the yield.

BIOS Protocol Fee Accrual (PFA): % of yield distributed to $BIOS stakers on the current chain, in the form of native assets.

BIOS buyback: % of yield used to support the price of $BIOS

Treasury Account: % of yield used to cover gas for system transactions, future development and maintenance of the platform and investment losses so users can withdraw their full principal.

Distribution weights vary based on market conditions and are viewable on the system11 dApp.
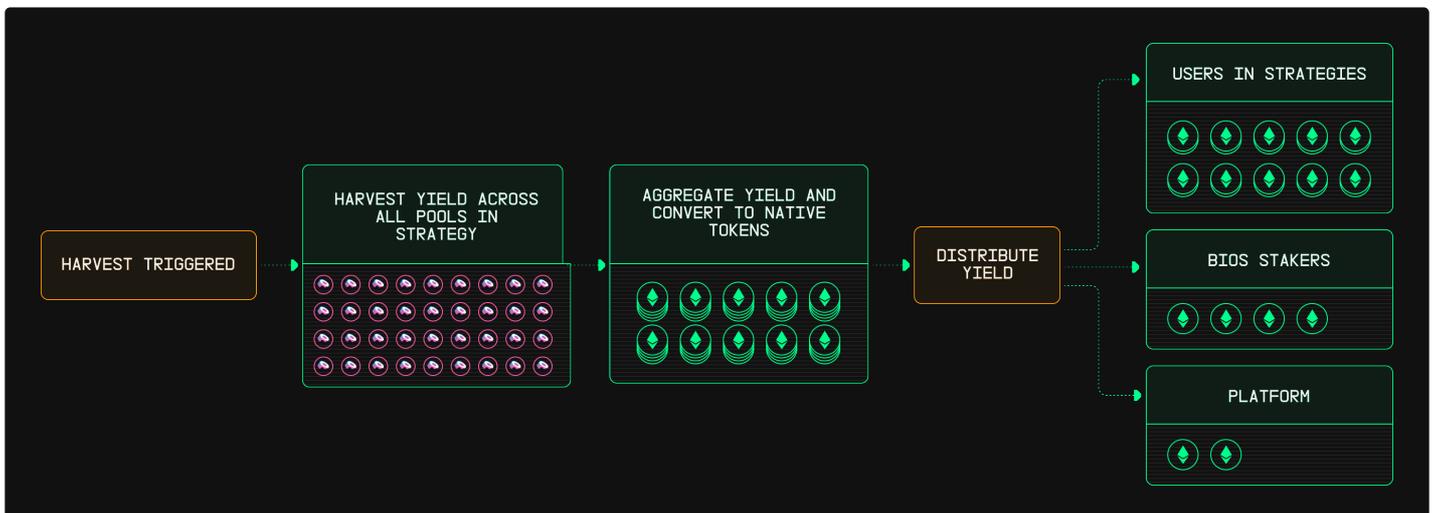
DATA LAYER

The 0x_nodes data layer is a set of analytic tools that provide insights into platform performance statistics, market opportunities, and the health of 0x_nodes investment strategies.

The 0x_nodes autopooling engine draws on data from an internally developed tool, "deXcraper", which continuously monitors the performance of 0x_nodes strategies and compares underlying liquidity pool performance to other candidate pools across DEX platforms. deXcraper will soon be released as open-source software and has been developed with strong 0x_nodes community engagement.

0x_nodes provides open access to its subgraph API endpoints to provide platform statistics, such as strategy performance, user positions, and in-depth accounting information. Other automated tools include Dune Analytics and Discord bots that provide on-demand platform performance reports to the 0x_nodes community.

0x_nodes Current Protocol Value

→ **[TVL]** `$7,507,143`

[BIOS] $2,168,961   **[NATIVE ASSETS]** $5,338,182

⬧ [ETHEREUM] $3,529,143

[BIOS] $1,507,778 / [ETH] $2,021,365

⊚ [ANDROMEDA] $3,071,255

[BIOS] $433,683 / [METIS] $2,637,572

⬡ [POLYGON] $463,167

[BIOS] $131,986 / [MATIC] $331,181

▲ [AVALANCHE] $213,969

[BIOS] $40,036 / [AVAX] $173,933

⬢ [FANTOM] $146,293

[BIOS] $36,191 / [FTM] $110,103

◈ [BSC] $83,316

[BIOS] $19,287 / [BNB] $64,029

0x_nodes Roadmap

// 2021

Q1

PUBLISH PRODUCT ROADMAP AND DELIVERY TIMELINE ←
COMPLETED FEBRUARY 2021

→ LAUNCH PROJECT WEBSITE
COMPLETED FEBRUARY 2021

PUBLISH THE _PAPER ←
COMPLETED MARCH 2021

→ COMPLETE HIGH LEVEL ARCHITECTURE AND PUBLISH SYSTEM SCHEMATICS
COMPLETED MARCH 2021

Q2

COMPLETE PUBLIC IDO ←
COMPLETED MAY 2021

→ UNDERTAKE INITIAL SEED ROUND
COMPLETED MAY 2021

CORE PLATFORM ARCHITECTURE ←
COMPLETED JUNE 2021

→ 0X_BIOS AIRDROPS
COMPLETED MAY 2021

Q3

3FARM STRATEGY FRAMEWORK ←
COMPLETED OCTOBER 2021

→ PLATFORM DEPOSITS AND WITHDRAWALS
COMPLETED SEPTEMBER 2021

MAINNET LAUNCH ←
COMPLETED OCTOBER 2021

→ SECURITY AUDITS
ONGOING

Q4

LAUNCH ON FANTOM ←
COMPLETED DECEMBER 2021

→ LAUNCH ON POLYGON
COMPLETED DECEMBER 2021

LAUNCH ON BSC ←
COMPLETED DECEMBER 2021

→ LAUNCH ON AVALANCE
COMPLETED DECEMBER 2021

// 2022

Q1

GITBOOK PUBLISHED ←
COMPLETED FEBRUARY 2022

→ MARKETING SITE REDESIGN AND LAUNCH
COMPLETED FEBRUARY 2022

APP INTERFACE REDESIGN AND LAUNCH ←
COMPLETED MARCH 2022

→ THE _PAPER PUBLISHED
COMPLETED MARCH 2022

UNIV3 DYNAMIC RANGE ORDER (DRO) STRATEGIES ←
COMPLETED APRIL 2022

Q2

SPOOKYSWAP INTEGRATIONS ←
COMPLETED APRIL 2022

→ SOLIDLY/HERMES SUBGRAPH
COMPLETED APRIL 2022

→ DYNAMIC STRATEGIES ("AUTOPOOLING")
COMPLETED APRIL 2022

IN PROGRESS

NYT+PYT INTEGRATION ←

→ MULTICHAIN RPC CLIENT

STRATEGY TOKENIZATION (VAULT FACTORY) ←

→ DEFI LLAMA LISTING

TRANSPORT LAYER FOR INTERACTION BETWEEN CHAINS ("INTERCONNECTS") ←

→ LIQUID STAKING TOKENS (I.E. SYNETH) TO FACILITATE EASIER WITHDRAWS

COMPOUNDING STRATEGIES ←

→ VALIDATORS AS A SERVICE

→ CXSBIOS (CROSS CHAIN STAKING)

0x_nodes Community

DEV TEAM

- 0x_NODES is able to attract and retain talent, as well as train and develop resources.
- Currently **25** contributors in **6** countries. **30** smart contracts, **160+** deploys.

SOCIAL

- Discord **1800+** members & self-moderated
- Twitter **9076+** followers
- Telegram **2400+** members

MARKETING

- Mutually beneficial to platforms and protocol integrations.
- 0x_NODES creates symbiotic co-marketing relationships that mutually benefit ecosystem growth.

LINKS

- **Linkedin:** **https://www.linkedin.com/company/0x-nodes**
- **Discord:** **https://discord.com/invite/0xnodes**
- **Twitter:** **https://twitter.com/0x_nodes**
- **Telegram:** **https://t.me/XND_chat**

0x_nodes Documentation

- GitBook: https://docs.0xnodes.io/
- Website: https://0xnodes.io/
- the _paper (this document): https://0xnodes.io/assets/documents/LITEPAPER.pdf