



Muon Protocol

A layer zero elementary node network for decentralized systems.

Muon Labs. AG 27.04.2021

Business Whitepaper

“The future belongs to those who believe in the beauty of their dreams.”

— **Eleanor Roosevelt**

Whitepaper v 1.1

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Executive Summary

Muon represents the key element of the rapidly evolving blockchain technology revolution: secure real time data feeds.

It is a layer zero solution to turn blockchain technologies into one ecosystem. It consists of a large number of nodes that process and sign valuable data upon request and push sensitive data to smart contracts on blockchains.

Written by:

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Challenge

As decentralization is becoming a reality, the major needs of our current business systems have to be addressed. That is data security and the accuracy of real-time data, such as the current price of a stock, or the freshness of fish.

Stock exchanges, logistics companies, or any frequently used goods and services markets rely on accurate and up-to-date prices. This price accuracy is key for just-in-time business relations and deciding who to trust and trade with.

Other attributes of goods and services, such as tracking of material origins, processing timestamps, safety and certification labels, etc, are also highly significant.



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In every business, any kind of friction results in the loss of time, money and opportunity. The faster the information is verified - and trusted - the faster the business relationships move forward.

Being able to easily verify information is also an important factor in making the world more environmentally friendly and fairer.

So far, oracle technologies have been a critical bottleneck. Verification is too slow and makes certain activities impossible. In major oracles, each price feed has its own infrastructure. This makes large scale deployment of different datasets, such as S&P 500, or NYSE listed stocks, difficult and cumbersome.

Solution

Muon Oracle Tech

Muon consists of a large number of nodes that sign valuable data upon request and enable smart contracts to verify the data on blockchains.

Each piece of data is signed by a certain number of Muon nodes. Once a transaction is confirmed on a blockchain, according to that piece of data, other nodes validate the transaction and place disputes if necessary.

Future DAO Governance

No single entity can create the optimal state of flux that is needed to smoothly operate a complex network. A well-developed system must represent its power users and other potential stakeholders.

Muon is designed to express the interests of a healthy multitude of actors, all united in their desire for a secure and accurate node system.

We will potentially seek a form of distributed governance system in the future, based on the decentralized nodes and potentially delegated votes. If and how this will be implemented will be determined together with the Muon legal team, the networks power-users, node providers and the community.



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The team plants the seed. A council of experts provides insights into the future where an industry consortium represents its power users, and a community of investors and node & service providers get rewarded for securing and funding the system.

Use cases of Muon Network

Oracles for Stocks, Assets and Exchanges

(natively built by Muon Labs)

Muon enables decentralized exchanges and trading platforms to support real-time trading of real-world stocks with live prices on the Ethereum, as well as other blockchains.

Merged DApps on Blockchains

Muon's PRC20 standard enables the creation of tokens with their balances and transactions being saved on multiple chains simultaneously. Muon nodes observe and combine data from all chains to allow transactions to be confirmed or failed on each.

High-level DApps on Blockchains

Muon nodes support high-level apps to run in a decentralized manner and push their final data on blockchains. An instance would be enabling high-level strategies using AI for Defi DApps that push their data on blockchains. Imagine having AI models on YEARN finance with data on Ethereum mainnet.

Lightning Networks for Blockchains

Similar to Bitcoin's lightning network, Muon merges small transactions and pushes data to blockchains periodically or upon request. This enables low-cost, fast exchange and payment solutions that are decentralized and secure with their data on blockchains.



Decentralized Supercomputers

DApps don't need to run on all Muon nodes all the time. This enables sharding which makes Muon highly scalable. Users are allowed to run high-level apps on Muon and push the results on blockchains.

By storing sensitive data on blockchains, there is no need for Muon nodes to keep all the data which makes running nodes simple, cheap and customizable.

Say hello to a truly decentralized powerful computer with databases all over multiple blockchains.

Technology

Lots of current systems rely on locking large amounts of collateral for their safety. Although, technically, collateral and insurance is only necessary as long as there is uncertainty. Once certainty is ensured, the insurance becomes obsolete.

With Muon XXXX oracles, the collateral is only needed at the intervals where the oracle-provided data is delivered and used, but has not been verified yet. The collateral becomes liquid again as soon as the data is validated.

Not every oracle provider needs to lock up collateral. All providers share an insurance pot with each other. This is possible through a mutual insurance mechanism.

Muon Token

Muon token is the building block of the entire ecosystem and acts as the vehicle of service. The Muon token is used as a means of payment for the services on the decentralized Muon node-network.

Such services could include:

- Decentralized Data-as-a-Service (providing data to the paying users)
- Decentralized Computation as a Service (providing computational power to the paying users)
- Collateralization of the network (Insuring value for users)
- And more, such as bots, machine learning services, AI-services

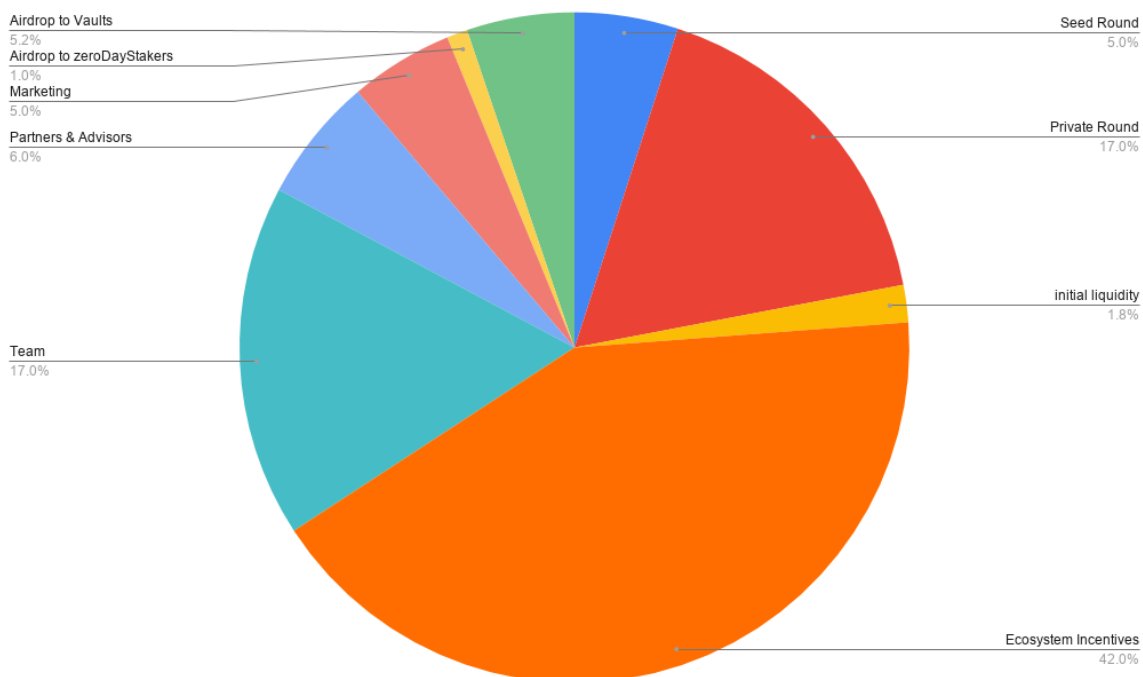


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Muon token is the first implementation of the PRC20 token standard. A token that lives on multiple chains with its balances and transactions being saved on multiple chains. Muon nodes combine all the data from all the chains before allowing a transaction to run or fail.

Token Economy

- 42% of the tokens will be used to provide incentives in the ecosystem for remunerate the nodes that validate true data.
- 17% will be sold in three rounds of private sale.
- 18.2% will be used to incentivize the team with a 12-month cliff.
- 6% will be allocated for Muon partners and advisors.
- 5% will be sold during the seed round for initial strategic investors.
- 5% will be used to pay for marketing expenses.
- 4% of Muon tokens will be paid as incentives in DEUS Vaults.
- 1.8% will be used to provide initial liquidity on exchanges.
- And the remaining 1% will be airdropped to DEUS ZeroDayStakers.



Launching with a limited supply, Muon will have incremental token releases over the



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next several years. Ecosystem incentives will begin 3 months after launch, with incremental payouts to node hosts.

- Circulating supply at launch: 678,000
- After 3 Months: 983,00
- After 6 Months: 1,290,000
- Total Supply: 3,000,000

Token Utility

The Muon token is used as a means of payment for the services provided by 3rd parties, which are offering them on the decentralized Muon node-network.

Such services could include:

- Decentralized Data-as-a-Service (providing data to the paying users)
- Decentralized Computation as a Service (providing computational power to the paying users)
- Collateralization of the network (Insuring value for users)

Muon Oracle

Technical overview

Muon is a layer-zero, off-chain oracle solution written in python that is structured from scratch. It uses gossip-to-gossip on a protocol level to communicate between nodes.

A current demo is available here:

['http://165.232.139.202:8000/api/v1/request?symbol=TSLA&source=finnhub'](http://165.232.139.202:8000/api/v1/request?symbol=TSLA&source=finnhub)

As a data source, finnhub.io is currently being used for DEMO purposes with a plan to add multiple data resources to showcase the strength of the subsequent verification process.

For a fully decentralized version of Muon, various other data sources will be added soon. Muon is currently in talks with Intrinio, Polygon and a number of other data providers for a reliable stock data feed.

We have already had various calls with data providers discussing the use-case and there is no conflict of interest in Muon “verifying” prices of stocks on-chain, as long as



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the data that is displayed on the apps as long as the source of data that is displayed on the app is not easily identifiable.

Accordingly, we will differentiate between the API that displays data for frontend and the live API that is verifying the prices. This is already in progress by using free available data for the frontend and direct requests of apps, and the live data to verify the prices on-chain.

Through various calls with data providers, we have established that there is no conflict of interest in Muon 'verifying' the prices of stocks on-chain as long as the source of data is obfuscated.

Consequently, the API that displays the frontend data must visually differentiate from the live API that is verifying the prices. This is already in development through using free available data for the frontend and live data to verify prices on-chain in the backend.

Once completed, any data source can be added to the frontend without violating any terms and conditions of data providers. That's partly the reason for the data feeds being so expensive.

Our aim is to deliver an oracle solution that is almost free to use. In order to do that, fees need to be paid either by users or protocols/dApps using our oracles to cover expenses for running the system.

Nodes Operations

Muon nodes can have one or several roles. Some nodes sign data and push it to blockchain. Others observe the data on blockchain and place disputes wherever they see anomalies. Others still take only the hosting role and use IPFS to save the data.

Muon nodes work in a gossip-to-gossip method where the user's request initiates the process in the first node. The first node then prepares the data, signs it, and propagates it to other nodes. That data pack is then pushed to blockchain after enough nodes have provided their signature.

Once the data is on chain, other nodes observe the data and place disputes if there is anything invalid. Resolving disputes can be done in various ways but it is always guaranteed by the collateral that signing nodes have locked in smart contracts.

Disputes can also be placed by users and DApps.



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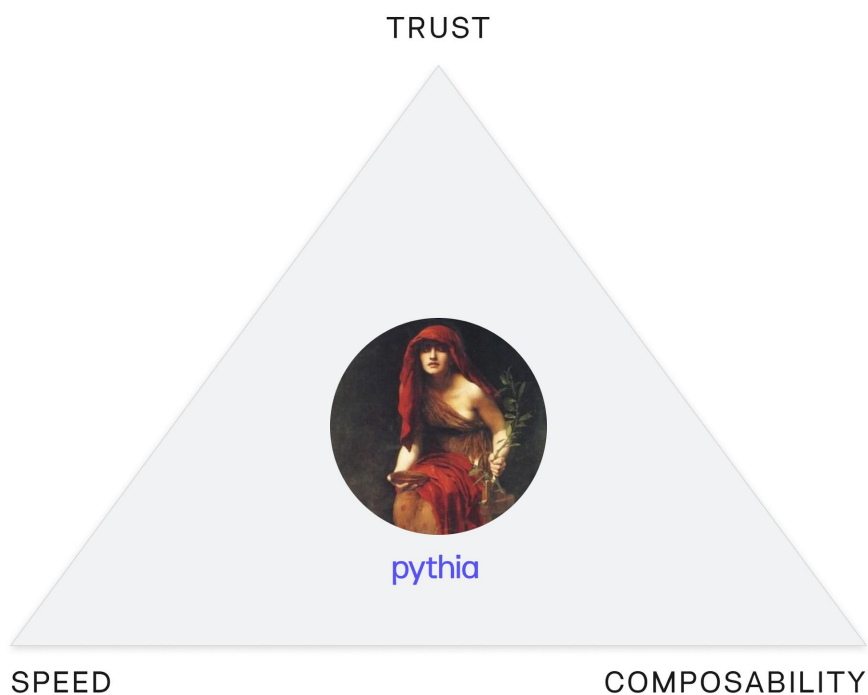
Node rewards vary between the tasks. Reward for signing the data will differ from reward for purely observing the data or hosting of the data.

Docker file packages will be provided to enable Muon nodes to be run by everyone in a simple way in order to attract as many nodes as possible.

SDK for further decentralization

A web3-like JS library will be provided for developers to import into their DApps. SDK will enable developers to interact with the Muon network directly, without the need to create their own libraries in order to connect to Muon nodes.

This will enable the creation of large numbers of DApps using the Muon enhanced off-chain computational network. DEUS finance has already built an oracle for providing live stock prices based on Muon.



Execution pace - Speed

Upon a user's request for a trade in a DApp like DEUS, the DApp sends a HTTPs request to the Muon Node network. Within a few milliseconds (current demo is



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running at 500 MS) the user gets a response with signatures which he merges with his transaction into a message, on any EVM chain.

```
time curl 'http://165.232.139.202:8000/api/v1/request?symbol=TESLA&source=finnhub'
{
  "creator": "0x06A85356DCb5b307096726FB86A78c59D38e08ee",
  "price": 655.41,
  "signatures": [
    {
      "owner": "0x06A85356DCb5b307096726FB86A78c59D38e08ee",
      "price": 655.41,
      "signature":
"0xcbb20330dcf86c6045274564c8f8c27f463603ffa1b45cef8b1e18329b420a8169d294810d232c
640e2a25dfb10102bb59a6f0e30dc92e010bb5bd5bc9e70b11b",
      "timestamp": 1615980872
    },
    {
      "owner": "0x4513218Ce2e31004348Fd374856152e1a026283C",
      "price": 655.41,
      "signature":
"0x90e7092eb7c050b21737fdc2aab73aab5120dbb3a7f8b085991afcd7d24172803305521dda7b9e
c4a95ca3d0f8fa8685ae5e3b1b061736bc635b14cf81f50aa71b",
      "timestamp": 1615980872
    }
  ],
  "success": true,
  "symbol": "TESLA"
}

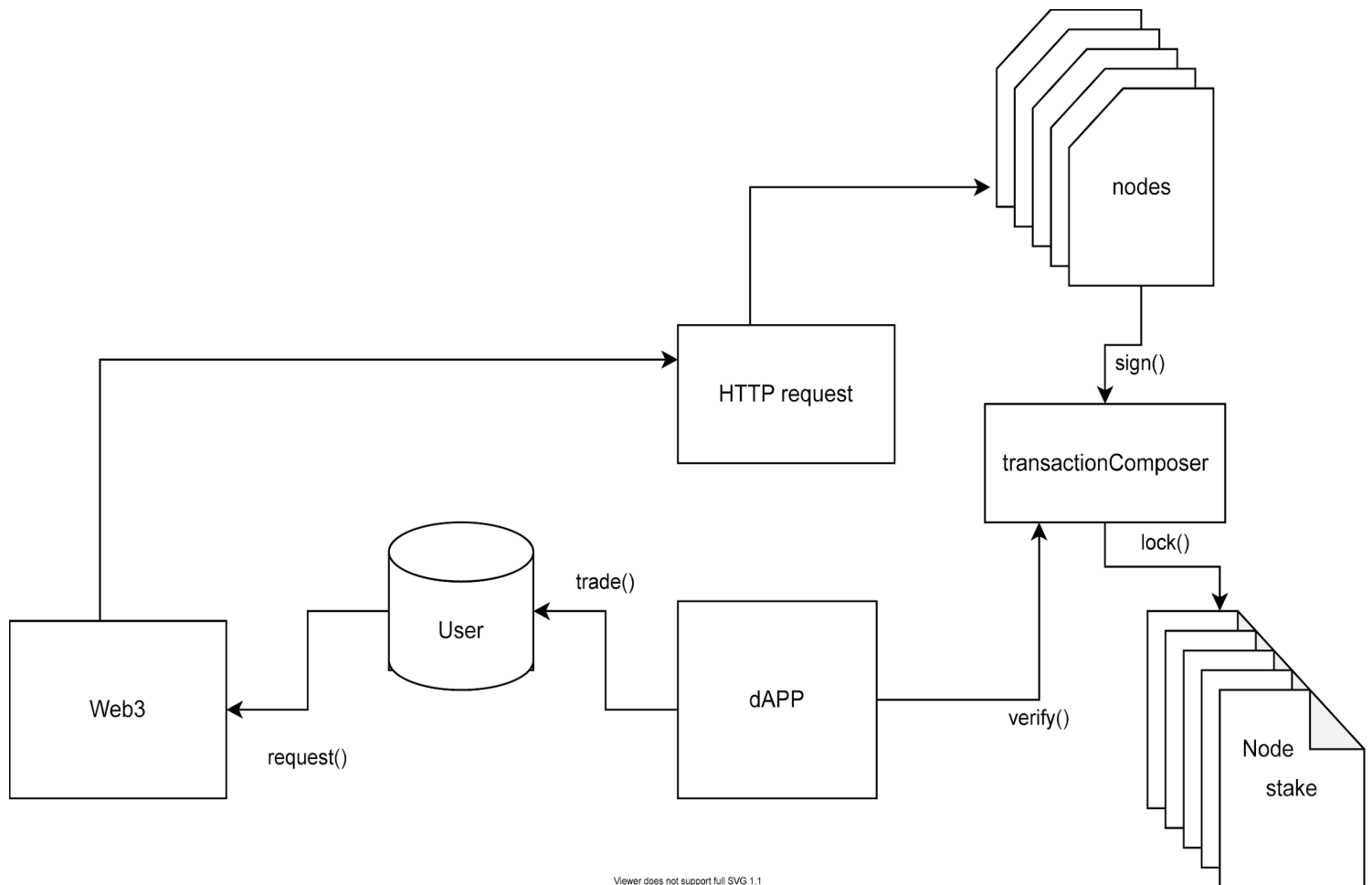
real 0m0.450s
user 0m0.008s
sys 0m0.000s
```

The example above shows a 0m0.450s response delay with two signatures that are used for executing a TESLA trade on-chain. The contract checks the signatures and compares them to a database of eligible signatures, before trusting the data.

The Muon contract then locks the stake of the nodes as insurance for the DApp host & their users, to ensure that the prices are correct. The insured amount equals the trading amount, especially in applications like DEUS. In other applications where the necessary amount of insurance isn't clear, the protocols need to agree on the insurable amounts.



Verification of price claims - Trust



Mere seconds after the web3 request and price claim, the Muon network will internally verify the price/data that the oracle has signed and it will freeze the stake that the node locked, in case of any disputes. Otherwise, the stake of the node gets unlocked and can be used to support incoming requests. The stake is only partially locked relative to the quantity of the insured amount.

Example:

There is a trade request for a TSLA Stock on DEUS for about \$10,000.

Oracle 1 & Oracle 2 both have \$20,000 staked.

They both claim the TSLA price to be:

"price": 655.41,



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As in the example above, \$10,000 of their \$20,000 are now locked. They can still claim prices and insure trades for another \$10,000. Their \$10,000 locked stake will be unlocked after a set time, if there was no dispute raised by any other node.

Everything is customizable - Composability

APP classes are predefined, and every app can customize their class for the fully immersive Oracle solution on any chain. Muon is therefore a fully customizable layer 0 solution and works as a base layer to any chain.

Classes are customizable in the following regards:

- Number of subsequent required signatures from the nodes in order to execute transactions.
- Number of sequential required non-disputed verifications.
- Transaction insurance amount (to some degree).
- Request Input/Output and its computation.
- Whether custom programs / scripts can be run.
- The deployed consensus algorithm.
- Implemented shards (to a degree).

The criteria above are chosen and composed by the external DApps like DEUS.

Database storage and computational power are also offered to DApps. AI algorithms could be trained & executed on the Muon network.

Go-To Market strategy

Muon protocol with the high-performance oracle that provides DApps with live and reliable data, and its bridging and merging technologies, enables developers to create cross-chain liquidity farming, cross-chain dexes that aggregate liquidity and thousands of synthetics that are scattered all over the chains and are connected and useable wherever there is demand.

DEUS finance is the first instance of using the protocol in practice. The oracle already beats all of the current well-known oracles like Chainlink that have been under development for years. Soon every decentralized project will use Muon in order to stay competitive with other projects.

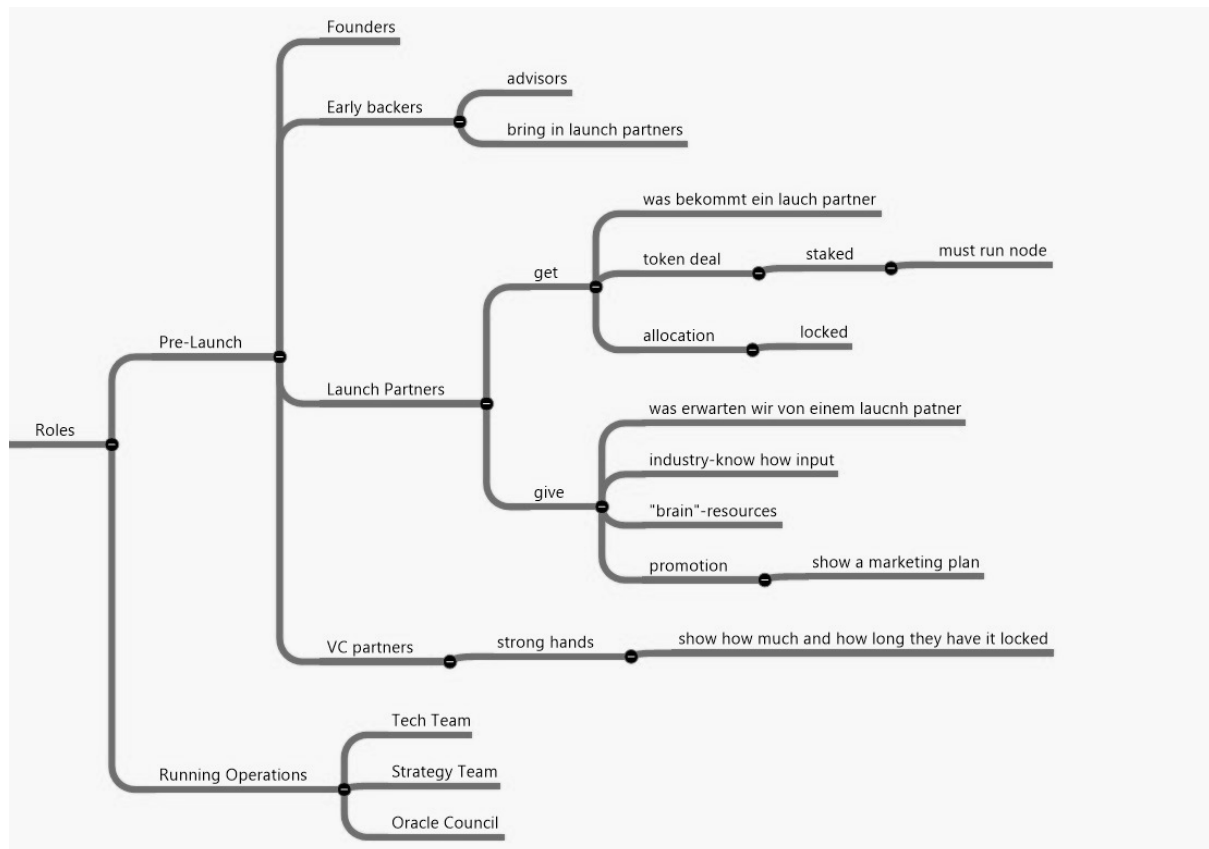
Muon-based solutions like the bridges, the oracles, and the brand new cross-chain



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token standard will soon encourage bright minds to come up with their own solutions and strategies to leverage the technology and help scale blockchain DApps infinitely.

DAO Consortium



Team / Launch Partners

- Tech Team, Vision Team, Strategy Team
 - Vision - imagining the future
 - Strategy - formulating a plan
 - Tech - creating the reality
- Early Backers
- Launch Partners
 - DeFi
 - IoT
 - Exchanges



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- Logistics
- Conception & Launch
- Elected council
- Launch Partners
 - Blocktower
 - DAOMaker
 - Intrinio
 - DEUS
 - Inconium

Expert Council

- Advises the project
- Areas of expertise
 - Blockchain tech
 - DAO governance
 - Industry
 - Trade
 - IoT
- Can call votes to be voted on by investors
- Get rewarded from mechanism

Industry consortium (~product owner)

- Anyone can apply, but get approved/elected by Token Holders
- Must give input on product development
- Must run nodes
- Can call votes

Token Holders / Node Providers

- Can veto team

Vote Weight

- Team 20



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- Expert council 20
- Industry consortium 30
- Investors 30



Roadmap

- **Early April 2021**
 - Whitepaper
 - Website
 - Deck
- **April 2021**
 - Company formation
 - SAFT
 - Legal preparations
- **Late April 2021**
 - SDK distribution
 - Onboarding Beta-tester Projects
 - Token sale seed round
- **May 2021**
 - Token sale private round
 - Muon oracle launch on DEUS finance
- **Late May 2021**
 - Muon token Launch
 - Exchange listing for public sale.
 - Liquidity generation events for Uniswap and Sushiswap pools.
- **June 2021**
 - Mainnet Launch
 - Public incentivized node network installers.
- **July 2021**
 - Public onboarding



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Do not contribute any money that you can't afford to lose in the Muon Token Sale. Make sure you read and understand this Whitepaper and TERMS AND CONDITIONS FOR PARTICIPATING IN THE Muon TOKEN SALE (including all warnings regarding possible token value, technical, regulatory and any other risks; as well as all disclaimers contained therein), as will be published on our website <https://Muon.digital> (as they may be amended from time to time).

Should you have any questions regarding the Muon project, Muon token, the contents of this Whitepaper or the sale of Muon tokens, please, do not hesitate to contact admin@Muon.digital or <https://t.me/Muonnet>