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SubDAO

Light Paper

SubDAO Labs



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1. Project Overview

SubDAO is a Cross-chain Platform built by SubDAO Labs to link DAO and DApp on Polkadot. It will be the infrastructure to maintain DAO and connect DApp with DAO in the world of Web3.0 powered by Substrate and Polkadot.

The SubDAO will run as a parachain to provide specific services. The various DAO templates and SubDAO Airfone will alleviate the burden on developers to maintain DAOs and to create very DApps linked with DAOs.

The initial governors of a DAO can easily create a cross-chain DAO by only a few clicks without any tech skills at all. Developers who are willing to build DApps can give the governance to communities by using SubDAO to create the very DAO connected to DApp through SubDAO Airfone. And the OCW (Off-chain Worker) provides the ability to access the off-chain world, which would empower SubDAO to access external data rather than only On-chain data, such as the price of stable coins, the contributions on Github, and so on.

2. Motivation

DAO is the ideal governance model in the mind of the team. Creating and maintain a DAO is not so easy, especially to make a DAO working across different chains. But with the help of Substrate 2.0 and Polkadot, the team thinks it is the time now.

In the area of Decentralized Autonomous Organizations, there are many mature DAOs maintained in different ways with different tools or platforms, such as **MakerDAO** and **The LAO**. Also, there are some other tools to help governors building a DAO, such as **Aragon**. Aragon is a project providing tools to create and the governor a DAO, but only available on Ethereum.

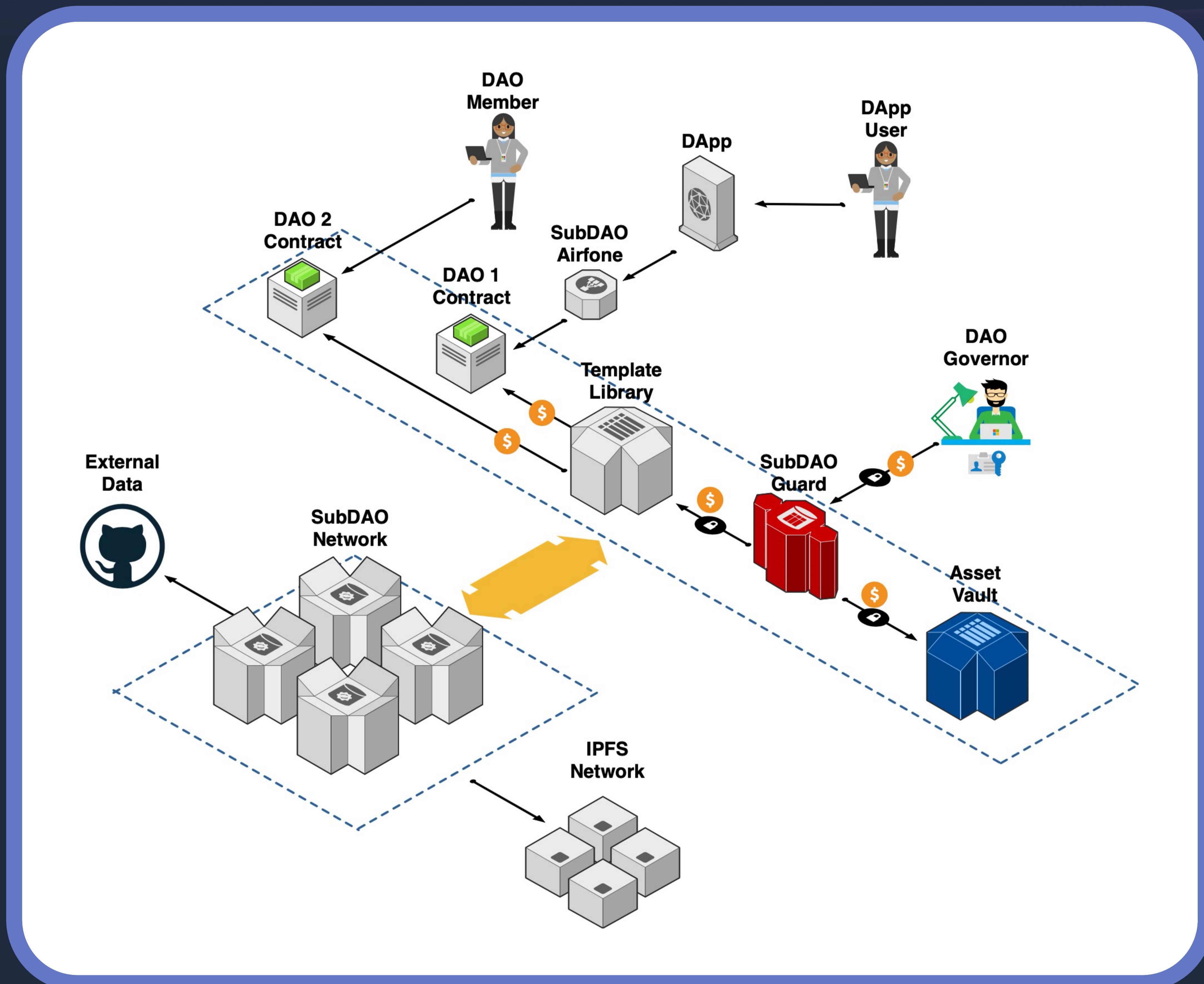
SubDAO is quite different and evolved from other DAO related projects. The goal of **SubDAO** is to create a (1) cross-chain platform providing (2) general and customized functionalities to govern a DAO (3) connecting to DApp with the ability to (4) access off-chain external data.

3. Architecture

With the state-of-art technology, SubDAO Labs can achieve the goal based on Substrate 2.0 and the Polkadot. The SubDAO project contains SubDAO node, Template Library, SubDAO Guard, Asset Vault, SubDAO Airfone, and Front End.

SubDAO

3.1 The Components of SubDAO



SubDAO Node is the customized chain node for the SubDAO network built by Substrate 2.0. It's the fundament of the SubDAO network that contains the basic functionality as a normal chain node but also provides the ability to fetch external data needed for DAO governance with the OCW (Off-chain Worker) from Substrate 2.0 Framework.

Template Library is the key component of the SubDAO network. It consists of multiple contracts. The main functionalities of Template Library are managing and providing various DAO Templates for different types of organizations. Everyone has the right to define new DAO Templates according to their needs, and the SubDAO network provides some default DAO Templates such as Voting Template, Fund Template, VC (Venture Capital) Template and so on.

SubDAO Guard is the original DAO of the SubDAO network. It provides basic management functionalities. Every member of the SubDAO network can get involved in the SubDAO network governance through SubDAO Guard.

Asset Vault is the smart contract to provide the basic features of manage assets for each DAO. Working together with DAO Template, the Asset Vault manages all kinds of assets, including the assets needed by creating a new DAO, the assets deposited by the governors of a DAO, and other assets.

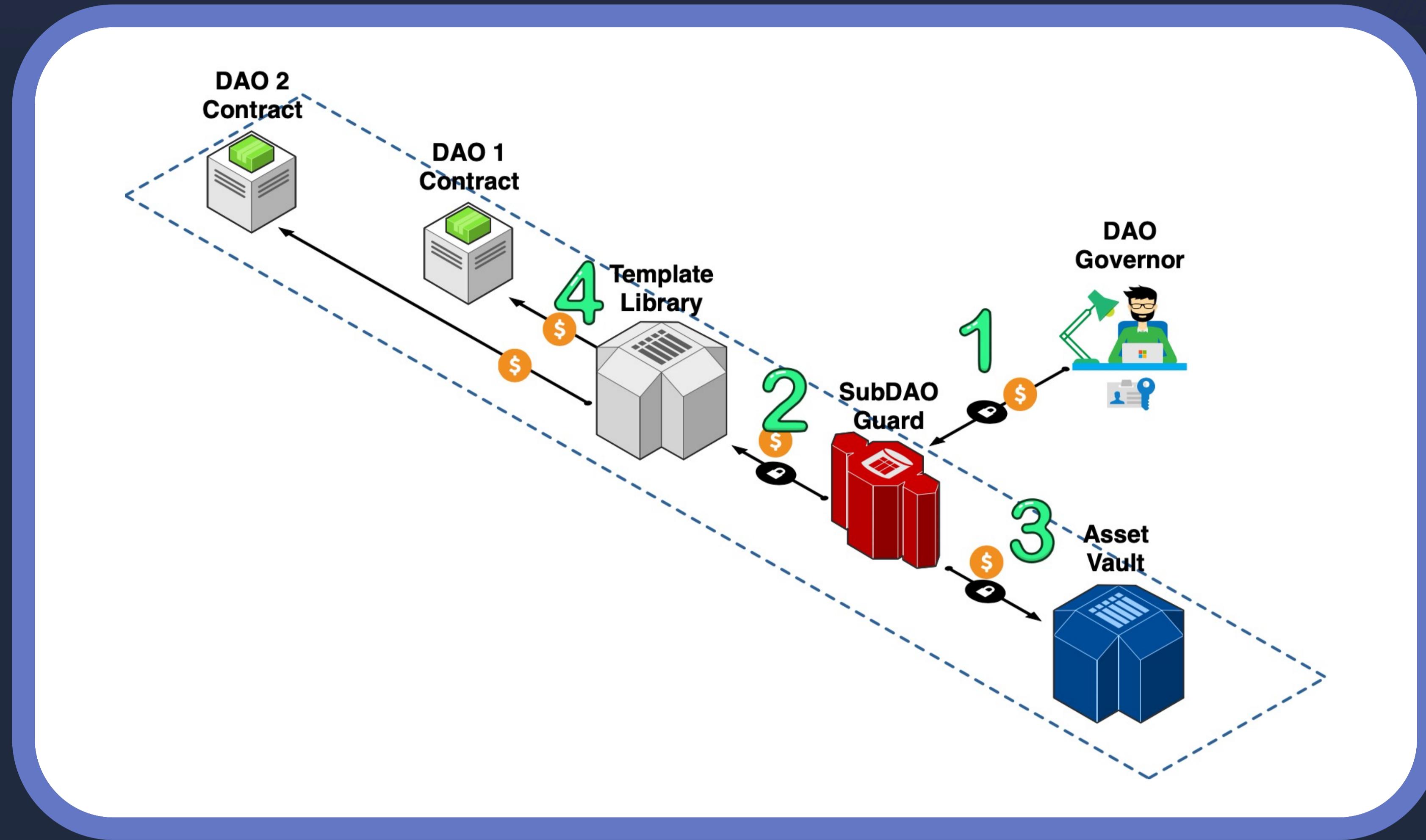
SubDAO Airfone is the SDK for developers to connect their DApps with the DAOs created by themselves or others. It will be provided as a Javascript library at the beginning, and in other languages later. Developers can use the SubDAO Airfone to interact with the SubDAO network directly or built their DApps with the connection to DAO.

Front End provides Web UI for everyone to interact with the SubDAO network. All the users need to do is opening the webpage deployed by the SubDAO Labs team or by users themselves to click the buttons following the manual. **Front End** will provide such functionalities as creating a new DAO, define a new DAO template, withdraw personal assets, voting in DAO, and so on. Front End will be built with NodeJS.

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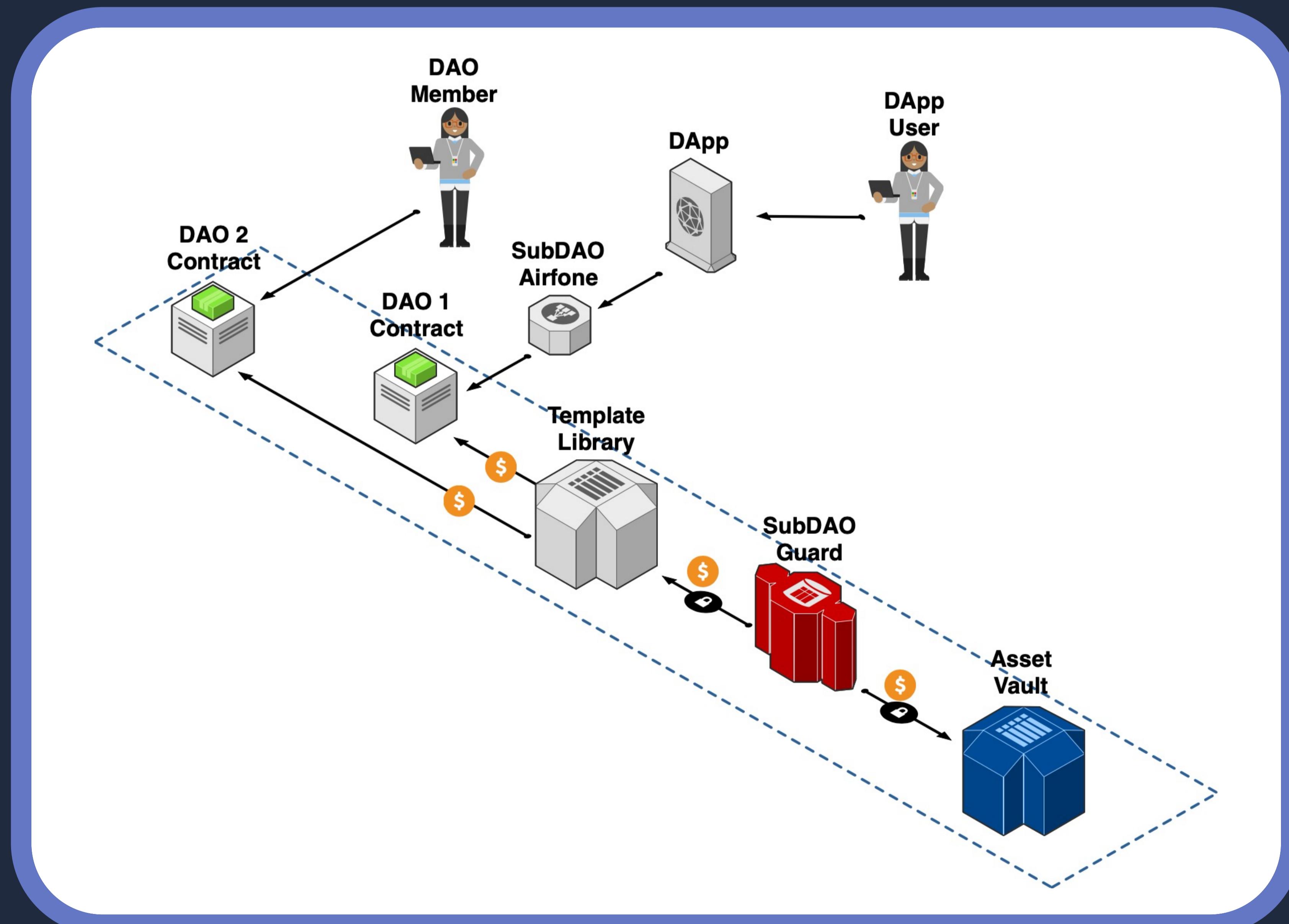
3.2 Scenarios

Scenario to Create a New DAO



As shown above, the steps to create a new DAO are marked. The DAO governor calls the smart contract of the SubDAO Guard to choose a proper DAO template from the DAO Template Library. After the governor fills the basic information required by template such as name, description, the rules of governance, initial members, and so on and deposits the initial fund to the Asset Vault, the SubDAO Guard contract will create the very DAO according to the chosen template and filled information. All extra information, such as images, texts, and files, will be stored in a decentralized storage network like IPFS.

Scenario to Attend a New DAO



Generally speaking, there are two kinds of ways to interact with DAO contracts. The first way to get involved with a specific DAO is using the **Front End** created by the SubDAO Labs to interact with all the DAOs on the SubDAO Network. The second way is using the SubDAO Airfone. The **SubDAO Airfone** will hide all the details of calling smart contracts for users and is used by DApps since the developers of DApps can customize their scenario according to their needs.

3.3 The Open SDK

Our ultimate goal is to provide an essential open SDK (**SubDAO Airfone**) from a high-level perspective together with the above components, so as to fully power the ecosystem of DAO across chains on Polkadot. With the functionality of the Open SDK, anyone involved can utilize DAO and DApp. The benefits of an open SDK are beyond criticism. The Open SDK will be an extension of both the DAO's capabilities and the value of the DApps through the whole Polkadot universe. We hope to build a framework in which any Decentralized Autonomous Organizations can live, and any Decentralized Apps can use in the Polkadot ecosystem.

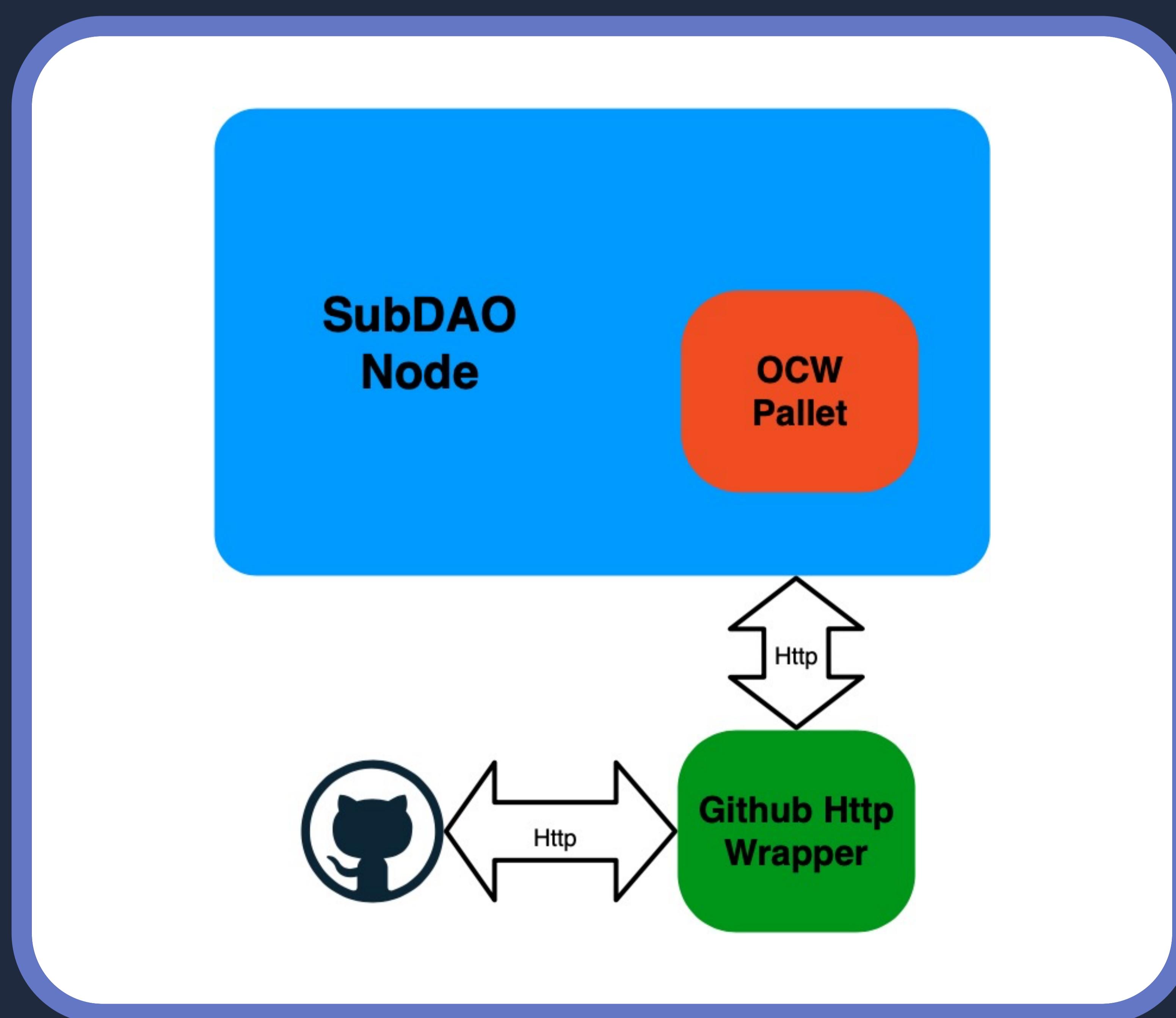
4. Substrate / Polkadot Integration

The whole SubDAO Network builds on top of the Substate 2.0, and the Polkadot ecosystem is essential to what SubDAO Network is trying to achieve. The SubDAO Network will be connected to the Polkadot ecosystem as a parachain, sharing the Polkadot underlying consensus, and being protected by the network performance of Polkadot and Substrate.

The off-chain worker is a new feature in the Substrate Framework that allows the SubDAO Network to interact with off-chain data.

4.1 Off-chain Worker

The node in the SubDAO Network is built with OCW (Off-chain Worker) enabled. The figure below shows how it will work with external data (for example, the contributions on Github).

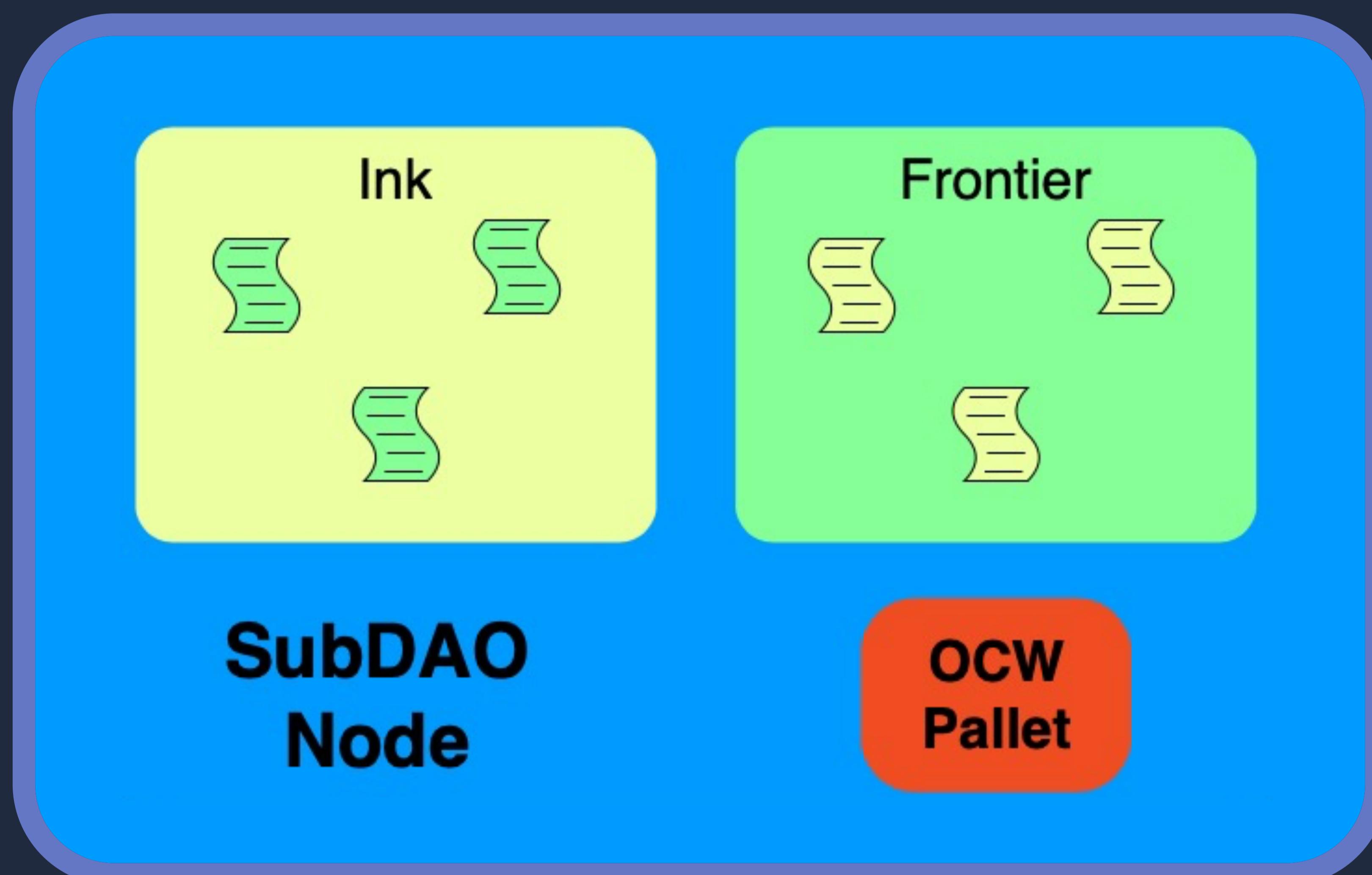


In the figure above, the SubDAO Node includes an OCW pallet that interacts with external HTTP service (Github Http Wrapper). Since the OCW pallet is a general component, most of the processing work of external data is moved out of OCW to decrease the complexity of implementation and give the ability to the DAO governors who want to use specific data sources for their DAO. The external HTTP service (Github Http Wrapper) will fetch the data such as contributions for a user in a project or repository from Github.com and feed the OCW pallet in the SubDAO Node.

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4.2 Ink and EVM

All smart contracts mentioned above will be implemented with **Ink** or **EVM**. Since the SubDAO Node includes **OCW (Off-chain Worker)**, **Ink** is essential due to **Ink** is the only way to interact with pallets currently. Thanks to Ethereum, **Solidity** is widely used over several years, and most of the developers are already familiar with **EVM**. Therefore, in the SubDAO Network, most of the smart contracts will be implemented by **EVM** to decrease the difficulties for new developers in Polkadot ecosystem.



As shown above, those contracts interacting with pallets will be implemented with **Ink**, and others will be with **EVM**. Later in future versions, when developers get familiar with **Ink**, the whole project will be upgraded to use **Ink** only.

For **EVM**, we will choose Frontier as the evm pallet.

4.3 The Pallet Implementation

The function provided by the pallet to get off-chain data is `requestOffchainData`.

1. `requestOffchainData`

desc: smart contract requests the off-chain data, the SubDAO network nodes will send data to the SubDAO chain through OCW integrated later.

params: HTTP wrapper URL, JSON params

return: dataId

5. Team

The initial members of the SubDAO Labs team are big fans of Web3.0 technology. They come from different areas, ranging from full-stack developer, product manager, project management to cryptocurrency early adopters. DAO is the ideal governance model in the mind of the team. Creating and maintain a DAO is not so easy, especially to make a DAO working across different chains. But with the help of Substrate 2.0 and Polkadot, the team thinks it is the time now.

Creating a DAO is not a new thing to the guys involved in the blockchain world, just like shooting a man to the Moon is not news to the fiction novel readers nor people. But the opportunity for everyone to easily travel forth and back between the Moon and the earth is making a big difference! All the team trying to do is to build a cheap, reliable, and fast enough vessel for people to travel between the Moon and the earth even further between Mars and the Earth. The team wants to provide a cheap, reliable, and fast enough way to let everyone being able to create DAOs and DApps across different chains

SubDAO

Team Members are as follows.

Wang Qiang

Techical Contributor

Chief Solution Architect in Tencent
Former Team Lead in IBM
Core Developer of Smart Cloud / HSLT
Code Contributor of KVM
Community Contributor in RedHat

Humphrey

Community Contributor

Graduated from Peking University
Co-founder of PAKA Fund
Investor in many early projects of Polkadot

Marvin Tong

Techical Contributor

Founder and CEO of Phala Network
Former Product Manager in Tencent

Owen

Community Contributor

Stafi Co-founder

Da Jun

Techical Contributor

Former Senior Software Engineer in Alibaba
Core Developer of Wetez and StaFi.io
Over 12 years of experiences in Development

Sang

Community Contributor

Founder of Polka Warriors
Founder of Dotmarketcap

6. Development Roadmap

In phase 1, our goal is to achieve all the designed functions and provide the basic voting for all DAOs. In the first milestone, the features for the PoC will be implemented and tested by limited users. The following features will be included:

- SubDAO Node with OCW to fetch simple data
- Template Library with basic functionalities
- SubDAO Guard
- Default Voting Template
- Asset Vault
- Front End

The implementation of off-chain workers of the Substrate Framework will be built and validated. The designed off-chain data is the contributions on Github.

In phase 2, more DAO templates will be implemented, such as the Fund Template and the VC (Venture Capital) Template, and the SubDAO Airfone will be included for developers to connect their DApps with DAOs.

In phase 3, the SubDAO Network begins to provide services for any kind of DAO with customized DAO templates while we plan to release a new version with low-cost functionalities to the public.

Finally, our goal is to provide the essential platform with the Open SDK to facilitate the ecosystem on Polkadot.

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SubDAO Labs

🔗 <https://github.com/subdao-network>

🌐 www.subdao.network