InterFi Interoperable Protocol

— Turn DeFi into a Service by DAPI

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content

1 Introduction

Currently, there are still many problems in the DeFi market, such as islands of applications, lack of on-chain credit systems, dearth of a more universal decentralized stablecoin.

Islands of Applications

One of the biggest advantages of DeFi over traditional finance is its composability. Developers can work efficiently based on the established protocols like building Lego and leverage their existing user base. However, the composability of DeFi comes with many inconveniences and systemic risks. This is because every application is designed with a focus on inside functionality and risk control, without much consideration for combination with other ones. Most of the staking-based DeFi projects generate a type of receipt token as the receipt, such as Aave's aToken, Compound's cToken, Uniswap's LP token, etc. However, the majority of the receipt tokens cannot be freely used in other applications.

Lack of On-chain User Credit

Although we are in a very innovative and open-financial era, the token lending market still somehow abides by the old-fashioned pawn-house-alike collateral pattern. Also, over-collateralization is required for token lending, which gives rise to low capital utilization efficiency. If user credit can be shared across different DeFi projects, it would be able to build a commonly acknowledged on-chain user credit without KYC.

Dearth of A Universal Stablecoin

Stablecoin serves as a bridge between the crypto world and the real world. As more and more individuals and institutions enter the market, the size of the stablecoin market is booming. Although stablecoins like USDT and TUSD are soft-pegged to the US dollar, there are risks such as centralized management, opaque accounting information, inability to timely respond to market fluctuations, and a series of policies and regulations, etc. In addition to a relatively stable price, a real stablecoin should be backed by a transparent and decentralized entity, rather than a bank or trust itself. Maker allows users to leverage digital assets as collateral, making DAI being the third commonly used stablecoin in the market. But DAI currently only accepts collateral Ethereum-based assets, resulting in its limited overall scale and usage scenarios. Recently, the rapid growth of the DeFi market brings higher demands for stablecoins. However, the increasing fees charged by Ethereum force many projects to migrate to other chains. At this point, we urgently need a universal stablecoin that can circulate among different chains with the feature of easy to use and interact with, as well as the adaptable scale to the market demand.

All the above problems lead to the current situation of over-collateralization in the DeFi market: serious fragmentation of capital pool, difficult interaction, cumbersome process, and extremely low efficiency of capital utilization, which is a huge waste of resources.

InterFi is committed to enabling resource interoperability among DeFi applications, and building a series of infrastructure to speed up the development of DeFi. InterFi uses standardized DAPI to turn every DeFi application into a business service. Any application can use these services to build its product, which can greatly shorten the product development cycle, improve development efficiency and bring a brand-new user experience. Besides, through the combination of different services, applications can communicate with each other more conveniently, explore more new functions, and bring users more different ways of playing.

This paper mainly describes InterFi Interoperable Protocol, which provides a series of infrastructures including service interface standardization and some basic services. Currently, there are four types of basic service standard DAPIs in InterFi:

- Asset DAPI
- Stablecoin DAPI
- Credit DAPI
- Farm DAPI

Interfi will also provide more basic services in the future.

2 Asset DAPI

In current DeFi market, almost all the applications are aimed at users' assets, that is, attracting users to deposit assets. Users need to send the excess token to the lending platform to borrow another asset. Just like a mortgage loan, one must transfer the use right and property right of the house to the bank to borrow money, which is pretty inefficient.

InterFi is building up a new way to use funds with a lower cost of handling capital, less unnecessary receipt tokens, and separation of the use right and property right of funds, to create a more efficient capital market.

2.1 Depoist

Users can deposit assets into a DeFi application.

2.2 Withdraw

Withdraw asset from a DeFi application.

2.3 Lock/Unlock

Asset locked/unlocked. The locked asset can still be used in the application under certain rules. The application shall ensure that the use of locked assets cannot change the asset type and

quantity, and will not affect the liquidation process.

For instance, in a SWAP that provides single sided liquidity, locked ETH can be switched from TokenA/ETH pool to TokenB/ETH pool to seek higher returns. Meanwhile, it can also keep the locked state in InterFi, and use other functions to achieve more effective use of funds and leverage the effect of return amplification.

2.4 Freeze/Unfreeze

Assets frozen/unfrozen. Different from asset lock, the frozen assets cannot be operated by users, but they still are active in the business of the application. Swap's LP token, for example, is still providing liquidity and users can profit from it, but they cannot use the tokens.

2.5 GetUserAsset

Query the asset of user in a DeFi application.

3 Stablecoin DAPI

Stablecoins are the holy grail of the cryptocurrency world, as they turn volatile assets into stable assets that are easier to circulate and use. DAI is now the most popular decentralized stablecoin, but it is mainly involved in token collateral to generate DAI and hard to interact with other applications. Also, DAI does not expand with the demand of users for stablecoins, but with the demand for leverage.

InterFi is building a new stablecoin FAI with a self-regulating and lower mint rate or even negative mint rate. It also provides a set of standard stablecoin DAPI interfaces for other applications. Users can directly freeze or lock assets in other applications to mint stablecoin FAI, which makes it easy to combine other features in the application.

3.1 Mint/Burn

Mint/burn of stablecoin FAI. The application needs to provide information about the user's position for invocation, including the account address, freeze/lock token, freeze/lock/ unfreeze/unlock amount, mint/burn amount, etc.

For the project side, a combination of the Mint/Burn interface and asset DAPI can be used to provide users with stablecoin minting capabilities.

< FAI stablecoin protocol will be published in the future>

4 Credit DAPI

Credit is the cornerstone of the business and social activities, of which the form has been evolving since ancient times. Due to the lack of an effective on-chain credit system, many businesses of traditional finance can hardly be carried out on the chain, or can only be accomplished through over-collateralization. Taking Synthetix as an example, to prevent asset price fluctuation risk on both sides, the average collateralization ratio even exceeds 700%, while these collateralized tokens are left idle doing nothing.

In the blockchain space, users use the functions provided by the on-chain applications by sending transactions, and these on-chain data automatically form the credit for each account. InterFi calculates the user's credit with the **ICS**(InterFi Credit Score) model based on the user information provided by each application. An application can in turn use the on-chain credit to build its DeFi application. For example, a lending platform could lower the collateral rate of a user according to his or her credit, or authorize a portion of unsecured loans.

The ICS model performs comprehensive evaluation by five parts:

- Economic Activities (30%): the involvement of economic activities on the chain, including the investment of assets, contribution to the platform, activity and so forth.
- Debt Burden (30%): the leverage of the individual. More the debt is, lower the score would be.
- Performance Capacity (30%): the credit situation of repaying various loans.
- External Identity (7%): the credit situation of external platforms. We will consider cooperating with more mature ID schemes in the future.
- Social Networking (3%): calculating the influence and importance of the address through a model based on other transaction-related addresses. This part will be included when more users and applications connected.

The total score is 0-1000, of which 0-400 is poor credit, 400-700 is good and 700-1000 is excellent.

Please have a look at the appendix for specific evaluation indexes.

4.1 UpdateUserCredit

The application can call this interface to update information related to the user's credit evaluation, including on-chain activity, debt status, performance history, and platform contribution. This information is used to calculate the user's credit.

4.2 GetUserCredit

Get user credit in the InterFi ecosystem.

4.3 GetUserCreditDetails

Get the details of user's ICS detail statistics in the InterFi ecosystem, which include economic activities, debt burden, performance capacity, external identity and social networking information.

5 Farm DAPI

Due to the popularity of over-collateralization and liquidity mining, the fund utilization in DeFi market has been relatively low. For instance, CDP holders in MakerDAO, actually suffer much higher collateralization ratios than the minimum one required by the system, to avoid liquidation. The average collateralization ratio is about 300%, which implies the asset efficiency of the entire Maker system is extremely low. If these assets can be utilized efficiently, a much more impressive rate of return could be expected. I.e. on lending platforms, pool utilization rate would soar sharply upon any tiny increases of the loan demand, due to locked assets insufficiency. This would cause lending rate surges far beyond the normal level. The interest rate difference between platforms provides a profit margin for arbitrageurs but, on the other hand, could cause great losses of interests to the lender. If funds can be allocated from a well-funded source, such as swap, the lender will be able to avoid this loss and IP providers of the swap can also gain additional benefits.

With the help of the built-in scheduling management protocol, InterFi can dynamically transfer funds out, thus opening up the channel of funds among applications and allowing funds to flow to where they are more needed, which maximizes the overall utilization of funds and also provides double benefits for users.

5.1 Deposit/Withdraw/Claim/getUnclaim

Users or project sides can call this interface to deposit free or illiquid assets into the system to earn revenue and withdraw them at any time.

< Allocation protocol will be published in the future>

6 Conclusion

InterFi Interoperable Protocol provides service interface standardization, service registration, and permission management, as well as some other basic services. InterFi makes it easier for applications to communicate with each other, and accelerates the development of DeFi. InterFi brings three key innovations to DeFi:

- Standardized DeFi application interface, turning DeFi into a service, and allowing applications to communicate more conveniently and efficiently.
- A new way for funds interaction, through reducing the transfer cost of funds and the

separation of use rights and property rights, thus creating a more efficient capital market.

- Building on-chain credit, based on which applications can build credit-related DeFi applications.

In the future, we will provide more services to make the highway of DeFi more convenient and smoother.

Appendix

Each evaluation index will be segmented according to the quality of user behavior, with the score from low to high representing from poor to excellent.

Category	Evaluation Index	Credit Score
Economic Activities 300	Count of engagement in the ecosystem in the last week	0~20
	Amount of engagement in the ecosystem in the last week	0~20
	Count of engagement in the ecosystem in the last month	0~20
	Amount of engagement in the ecosystem in the last month	0~20
	Count of engagement in the ecosystem in the last three months	0~20
	Amount of engagement in the ecosystem in the last three months	0~60
	Total platform contribution	0~100
	Number of apps participated in the last three months	0~40
Debt Burden 300	Total loan amount in the last week	20~0
	Total loan amount in the last month	30~0
	Total loan amount in the last three months	40~0
	Total amount of historical loans	60~0
	Total repayment amount in the last week	20~0
	Total repayment amount in the last month	30~0
	Total repayment amount in the last three months	40~0
	Total amount of historical repayments	60~0
Performance Capacity 300	Total number of defaults in the last week	10~0
	Total amount of defaults in the last week	10~0

	Total number of defaults in the last month	10~0
	Total amount of defaults in the last month	10~0
	Total number of defaults in the last three months	10~0
	Total amount of defaults in the last three months	20~0
	Total number of historical defaults	60~0
	Total amount of historical defaults	80~0
	Average daily balance of account in the last week	0~30
	Average daily balance of account in the last month	0~30
	Average daily balance of account in the last three months	0~30
External Identity 70	Credit status in other ID systems	0~70
Social Networking 30	The influence index of the account's social networking evaluated through the algorithm based on the transaction-related accounts	0~30