

The Trace Network

Trace: Enterprise-grade POS consensus-based permission-less protocol for supply chain, data management, trade settlement & financing powered by Defi & NFTs.

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Background

Despite various advancements in the techno sphere, the industrial ecosystem is still struggling with various fundamental challenges, which are inhibiting their growth and resulting in expensive inefficiencies.

These challenges include but are not limited to disconnected data within the company and their business network which includes buyers, suppliers, and financial institutions on all ends, as a result of which limiting the financing options which are full of cumbersome, lengthy, and expensive processes.

With the advancement in blockchain technology, the decentralized finance (DeFi) industry is emerging as a plausible extension to the existing avenues of working capital and trade financing. However for businesses to participate and benefit from the current stature of the DeFi ecosystem interconnection and seamless progression of transactions on-chain is inevitable.

In order to solve the core financing needs of enterprise businesses, there is a dire need for protocol enabling on-chain proof of transactions to be used as referential information while sourcing liquidity from the existing defi ecosystem. In an attempt for facilitating the above, Trace Network is enabling an enterprise DeFi protocol harnessing the capabilities of composable smart contracts, permissionless financing options powered by DeFi and facilitated by its unique identification characteristic of NFT to unlock the full liquidity potential of businesses locked into scattered merchandise inventory and business transactions.

Introduction

Trace Network is an enterprise-grade NFT based decentralized finance protocol harnessing the capabilities of composable smart contracts to enable permission-less financing options powered by DeFi, and NFT based unique merchandise identification solutions to unlock the billions of dollars' worth of business potential otherwise undermined due to poor merchandise inventory & ownership management, costlier trade financing & banking options, and perennial inefficiencies in par Diem business transactions.

Problems and Motivations

Counterfeit Products risking the brand's reputation

Any reputed brand's struggle in today's scenario is to save their reputation by saving their consumers from counterfeit products. The counterfeit market roughly has taken away almost 14.3% of the brand's business and the reputation cost is something way beyond these numbers. And in the luxury products business, it takes years of struggle to create a loyal customer base and anything like counterfeit products is killing their existing business and the repetitive business they expect from the same loyal customers. There is a dire need for bringing mechanics to identify the originality of products, which can help the customer to make a purchase based on the brand's reputation.

Real-time stock status absence across the supply chain

In today's scenario, there are many systems used across the distribution network which does not bring clear visibility of stock to the last level of the chain. Many buying decisions by Brands are taken on the basis of the existing stock situation across the distribution chain to replenish the stock or to control the over procurement of stock. There is utmost need to control or eliminate these inefficiencies created due to having multiple systems at various levels of stock points across the supply chain.

Cumbersome data integration mechanisms

Today the businesses are struggling mostly with inefficiencies created by multiple systems set up across the supply chain and also due to departmental-based silos systems. They are either managing the data management manually or with cumbersome point-to-point system integration. Today's multiplex supply chains need to be more transparent and efficient. End-to-end visibility with a single version of the truth in a supply chain is a nirvana that every business would like to achieve. With the evolution of electronic data interchange (EDI), companies went from everything manual to paperless transactions. As the technology matured, the value-added network (VAN) was replaced by FTP, AS2. The introduction of centralized EDI systems has brought privacy issues across companies exchanging data. Hence, there is a need for a decentralized platform that can help these ecosystem partners

to exchange the data safely, without much cost, and also which is efficient and intelligent to be replicated for new partner system integration.

Cumbersome, time-consuming, and expensive financing options

Today most of the businesses are struggling to finance for liquidity, as they have their invoices pending for settlement due to credit period, or their trade incentives are stuck with the statutory bodies or they might require working capital to grow businesses.

Post Shipment Financing

Generally, the companies work on credit periods to settle the invoice amounts. The current banking system allows them to take loans against these open invoices. Through Invoice discounting, the due invoices are put on collateral with banks to get the loans. The companies present their invoices to parties like banks, which give required loans. However, this process is time-consuming and comes with a higher interest rate.

Pre-shipment Financing

Pre-shipment businesses can go for financing via Packing Credit loans or invoice factoring pre-shipment. Packing Credit loans enables businesses to get loans against the orders from their reputed customers they acquire. On the other hand, factoring businesses own the invoices of the companies and give them the funds at discounted values. In both cases, the credit requires submission of complex documentation and incurring cost is high. Looking at these available scenarios businesses need the facility to enable borrowing loans without the hassle and at low-cost interest rates.

Delayed inter and intra enterprise trade settlement

Today's banking infrastructure enables invoice settlement at a slow pace. The overall time of processing funds across companies takes on an average of 3-4 days to move the funds across company accounts. Businesses need a more efficient infrastructure in order to save time in such trade settlements.

Proposed Solutions

NFT based on chain merchandise identity management

Blockchain enables the generation of NFTs of products to create their unique digital identity. Based on the NFTs, which will be generated on ERC 721/ERC 1155 standards, will allow ownership of product/packs and also the movement of ownership across multiple dApps. These product NFTs would act like a unique barcode, which shall be unique across all blockchains.

Brands/retailers would mint NFTs for any new product which they would be generating on Trace network and shall move it to their PLM systems using SDK extension. Or they can send the product details on Trustify and shall generate the NFTs, which will be stored on the blockchain as well the PLM system used by them using the provided SDK extension.

The main benefit of replacing the existing barcode structure with globally unique NFTs is that one won't have to follow different organization standards.

Real-time traceability for movement of goods based on NFT Enabled merchandise identification

Product NFTs have another important function besides creating a unique identity, which is enabling and recording the movement of products from one address to another on the blockchain, hence enabling traceability for the movement of goods. Besides the stock movement, NFTs would make it quick and simple to see the overall stock status of products across the distribution network.

NFT based customer loyalty and incentivization instruments.

NFTs will not only be used on trace network for merchandise identity, instead it will also be used for enabling various community incentivization instruments for brands like gift cards, discount coupons, loyalty cards etc for brands to be able to build a loyal and long lasting community.

On-Chain NFT swap for community instruments.

In addition of minting capabilities Trace Network will also enable capabilities of instant swap of NFTs amongst the community to enable further brand engagement and gamification for users to be more involved with the brand, hence bringing in more engaging and long standing brand loyalty.

Smart Contract based on chain multi-system data interchange exchange

EDI Contract would facilitate the movement of data from one system of a trading partner to another on blockchain to bring visibility, transparency, and trust across the supply chain. Simply by using the SDKs the integration of data would be controlled, where each policy/process can be applied using smart contracts.

Brands would integrate their system using the SDKs bound with respective EDI transaction smart contracts to process and transmit the data on the blockchain. The other trading partners shall be using similar SDKs to integrate and receive data via respective smart contract on their systems.

A similar utility will help in intercompany system integration where each company can use different systems for their operation handling, however, consolidation of the group requires gathering data from these multiple systems using the respective SDK compiled along with the transaction smart contract.

On-chain trade settlement & financing options with liquidity facilitated by Defi.

DeFi solves the current challenges of trade financing by making the borrowing process less cumbersome, as well as providing lower interest rates. The documents like invoice or inventory stock value, which would be required to be put as collateral will be available on-chain, and the DeFi function shall enable borrowing the loans against it.

Advanced financing products backed by on-chain proof of business transactions

The industry has always felt the need to share credit terms within the ecosystem to manage the funds, however, in absence of the right instrument to control and authenticate such sharing made it impossible to implement the process. This mechanism can be made possible by tokenizing the credit terms and lending them to other trading partners of the ecosystem at little expense or interest rate.

Trade settlement managed with white label algorithmic stable coin

White label algorithmic stable coins would be maintained in the company treasury to settle the invoices. These white label coins would be minted by the company using the crypto assets to settle invoices without actual movement of funds from banks. Having WLSC would make it easy to control/nullify the volatility of existing crypto values and the coin would always be maintaining consistent values with USD.

The Product

NFT Marketplace

Trace Network's NFT marketplace- BLING is the 1st Limited Edition Luxury & Lifestyle Products NFT Marketplace brought to you by Trace Network. Currently, NFTs around the world only has a digital association, which means you can only own a piece of digital art that has been tokenized on a blockchain. BLING NFT marketplace from Trace Network, will act as a bridge between real-world goods and virtual non-fungible tokens that have been created specifically to represent a unique piece of that limited edition luxury lifestyle product.

This will not be just any real-world good, but a limited edition luxury item, such as a watch, a wallet, a purse, unique dresses, beauty accessories and many more.

Also, this marketplace will be completely decentralized, representing immutable ownership and runs totally on a series of smart contracts. Which means that any brand can be the creator of the NFTs and carry their NFT sales, auction and distribution in a permissionless manner.

Minting NFT for real world assets: Bling would enable the minting of real world limited edition products. These products would be minted by the brands who would allow their customers to own their products digitally and not just physically. This would allow brands to form a loyal community for their products.

Auction/Sale: Every Whitelisted Brand would be able to mint NFT's of their limited edition products and would place it on Auction or Sale. Each product on auction would have a base price over and above which the bid can be placed, which shall also be bounded by time limit.

Claiming the Physical Products: Once the NFTs are won in auction or purchased by customers, they can claim the physical products by declaring the delivery address. Once the physical product gets delivered to the final destination and confirmed by the customer, the NFT ownership will get transferred to the customer 's ERC20 wallet. The ownership of the NFT as well as the physical product will be recorded on the blockchain.

Trace Network will be built on the Layer 2 blockchain solution and will ensure high transaction speeds, ultra low or no gas fees, enterprise grade stability, and high security standards of layer 2 blockchain networks.

Layer 2 networks provides a framework for connecting to EVM compatible blockchain networks, thus making it easy for Trace to build cross-chain transaction bridges. Layer 2 solutions interoperable ecosystem allows transmission of data across different chains with ease and with practically no transaction cost.

The NFT tech stack will adhere to ERC 721 (Non-Fungible Token Standard) and ERC 1155 (Multi Token Standard) standards. The interoperability of Trace will make cross-chain transaction settlements, generation of traceable NFTs, and data transmission from legacy applications easier.

Besides this, Trace Network would also add the intermediate relayer infrastructure network to bring gas-less transaction infrastructure for simplified Web3.0 experiences on our multi-chain protocol. End user will be sending a meta-transaction similar to sending a standard transaction with details of from, to, value and signature except that instead of sending it directly to the Blockchain, it will send the meta-transaction to a relayer who will take care of the gas.

This Relayer will build a new transaction that contains the meta-transaction and sends it to a smart contract proxy . The contract checks the validity of the meta-transaction (basis of signature) before executing it. This mechanism will be used by Trace Network to improve users' onboarding. It allows them to sponsor the gas for their users while keeping the benefits of a decentralized system

Trace Network SDK

The Trace Network Software Development Kit (SDK) is a set of standardized tools or modules that can be used to model and customize marketplaces for easy exchange of unit value. SDK modules can be integrated into third-party applications. Alternatively, the modules can be customized as per enterprise needs and requirements to weave an entirely new sub-product. More information and related documentation shall be available in near future during the release of developer documentation.

The SDK is dynamically updated to meet the demand of ever-expanding use cases and ecosystem dApps. However, with existing capabilities and readily available modules, trade completion cycle and trade financing & settlement modules can be set up.

Trace payment, finance & settlement solution

Trade financing, where financial institutions provide credit facilities in order to guarantee the exchange of goods, is a centuries-old industry that hasn't seen much change with the growth of global trade flows. The trade finance market was measured at more than \$15 trillion USD.

Trace Network has re-imagined how trade finance can operate leveraging a Blockchain-based infrastructure to drive efficiencies, reduce the cost base and open up new revenue opportunities, like newer models of credit and funding guarantees backing the trade.

Trace network's dedicated software module aims at addressing pain points of this industry viz. Manual contract creation, invoice factoring, delayed timeline, manual AML review, Multiple platform integration, duplication of documents, data silos & poor management. Trace network's blockchain-based solution shall have the following advantages to streamline the enterprise process and hence infuse efficiencies. A few of the advantages of Trace Network are:

Real-time review: Financial documents linked and accessible through Trace Network blockchain-based ledger are reviewed and approved in real-time, reducing the time it takes to initiate shipment.

Transparent & quick factoring: Invoices accessed on Trace Network provide a real-time and transparent view into subsequent short-term financing and hence better monitoring.

Removal of Intermediaries: Banks facilitating trade finance through the Trace network do not require a trusted intermediary to assume risk, eliminating the need for the middleman to infuse trust into the transaction.

Risk mitigation: important trade documents like bills of lading, invoices, etc are tracked through Trace network's permissionless dApps powered by Trace network, eliminating the potential for double-spending & other risks arising out of counterparty failure.

Decentralized contract execution: As contract terms are met, status is updated on Blockchain in real-time, reducing the time and headcount required to monitor the delivery of goods.

Proof of ownership: The title available within Blockchain provides transparency into the location and ownership of the goods.

Automated settlement and reduced transaction fees: Contract terms executed via Smart Contract eliminate the need for correspondent banks and additional transaction fees.

White label algorithmic stable coin

Trace Networks trade finance and settlement module aim at offering more efficient storage, clearing & settlement options to enterprises through a new-age blockchain-based accounting system. With a focus to bring traditional businesses onboard and create forward and backward linkages to enterprises, the protocol provides the ability for minting own branded stable coin to facilitate business accounting & settlement with peer participants in the Trace ecosystem.

Core concepts

Token issuance: Enterprises or businesses who are stakeholders of TRACE and are network participants can mint their own stable coin for internal usage purposes and to interact with key partners in their native business ecosystem.

Collateralization: Businesses utilising the protocol are required to hold and deposit the protocol's native token TRACE to mint white label stable coins as per their inventory requirements and usage. This collateralization ratio is governed by protocol participants.

$$\text{Mintable Debt : } D_t^{\text{asset}} = V D_t^{\text{asset}} + S D_t^{\text{asset}}$$

The utilisation of the deposited funds. $U_t^{\text{asset}} = 0$, if $L_t^{\text{asset}} = 0$ $D_t^{\text{asset}} L_t^{\text{asset}}$,

if $L_t^{\text{asset}} > 0$ where asset represents protocol token

Token Burn: White label stable coins being issued by stakeholders or validators are mere accounting units for inter and intra business settlement and therefore hold no monetary value in free markets since their availability is restricted to be utilized internally. These white label stable coins shall be burned as per the consumption factor of that very issuer. Therefore, consumed tokens are burned and taken out of the system immediately in an automated manner as hard wired in the smart contracts.

Function I Burn

GenBurnAddr(1K , t) and BurnVerify(1K , t, burnAddr) which work as follows: – GenBurnAddr(1K , t): Given a tag $t \in \{0, 1\}^$, generate a burn address. – BurnVerify(1K , t, burnAddr): Given a tag $t \in \{0, 1\}^*$ and an address burnAddr, return true if and only if burnAddr is a burn address and correctly encodes t. We require that the burn scheme is correct.*

Function II (Correctness)

Correct if for all $t \in \{0, 1\}^$ and for all $K \in \mathbb{N}$ it holds that $\text{BurnVerify}(1K, t, \text{GenBurnAddr}(1K, t)) = \text{true}$*

Consumption Factor: collateralization is defined algorithmically as a function of consumption factor which can be ascertained taking into account network usage, token minting, token burning, token transfer functions. More the usage of network to mint & issue tokens, higher transfer ratio lesser the collateralization ratio requirements to be maintained by the business or token issuer.

$$\text{Consumption factor (cf)} = (m) \text{Token 1- (Token (u)* turnover (sf)) / 100}$$

Incentive distribution: As stated earlier, a portion of TRACE generated shall be distributed amongst network users, token holders as part of incentivization mechanism. The purpose is to transit to a decentralized autonomous organization over the time with sufficient community participation and monetary incentives for users which work or contribute to the protocol in various capacities.

Interest factor: Interest on capital provided as collateral (value of TRACE locked/staked at determined market price) is determined by nominal protocol usage and fee paid by the users on the transactions between the issuer and its ecosystem partners. The interest will be paid in protocol's native token TRACE and shall align to prevailing market interest factor which takes into account base rate and compounding factor.

Compound Interest = Total amount of Principal and Interest in future (or Future Value) less Principal amount at present (or Present Value)

$$= \$[P (1 + i)^n] - P\$$$

(Where P = Principal, i = nominal annual interest rate in percentage terms, and n = number of compounding periods.)

Debt issuance & repayment: The third party stable token issuer needs to repay the debt to the protocol and receive collateral so deposited. The token issuer can repay and re-mint debt as per inventory requirements during normal business discourse. As a one off event, minter can burn all the issued tokens to repay debt in full and close the books in case of business dissolution. The protocol considers minting of tokens as debt and hence treats the function as follows:

New Debt Minted (Total Existing Debt + New Debt)

User debt percentage =(New Debt + Existing Debt) (Previous Debt Pool + New Debt)

Protocol fee: All network participants are required to pay fees (in TRACE) for executing transactions on the network. The fee structure will be governed through a staked weighted voting system through community forums.

Reserve factor: To meet a black swan event and provide an internal insurance against sudden loss due to catastrophic situation a portion of network fees collected and generated in protocol shall be kept as reserves. This shall be managed by reserve factor so decided and governed by network users through community forums.

$$reserves_a = reserves_{a(n-1)} + totalfeeaccrued_{a(n-1)} * (r*t*reserve\ factor)$$

Liquidation: Collateral so deposited for issuance of white label tokens is exposed to liquidation events due to inherent volatility in collateral token (TRACE). Protocol shall have inbuilt hedging mechanism against such events which can be used by token issuer to make good the underwater account so as to keep the account solvent. Token issuers shall also be able to borrow or lend from peer network participants to meet such contingencies.

$$Debt * (Liquidation\ Ratio) / (Collateral * P\ Token/base\ ratio) = Liquidation\ Price$$

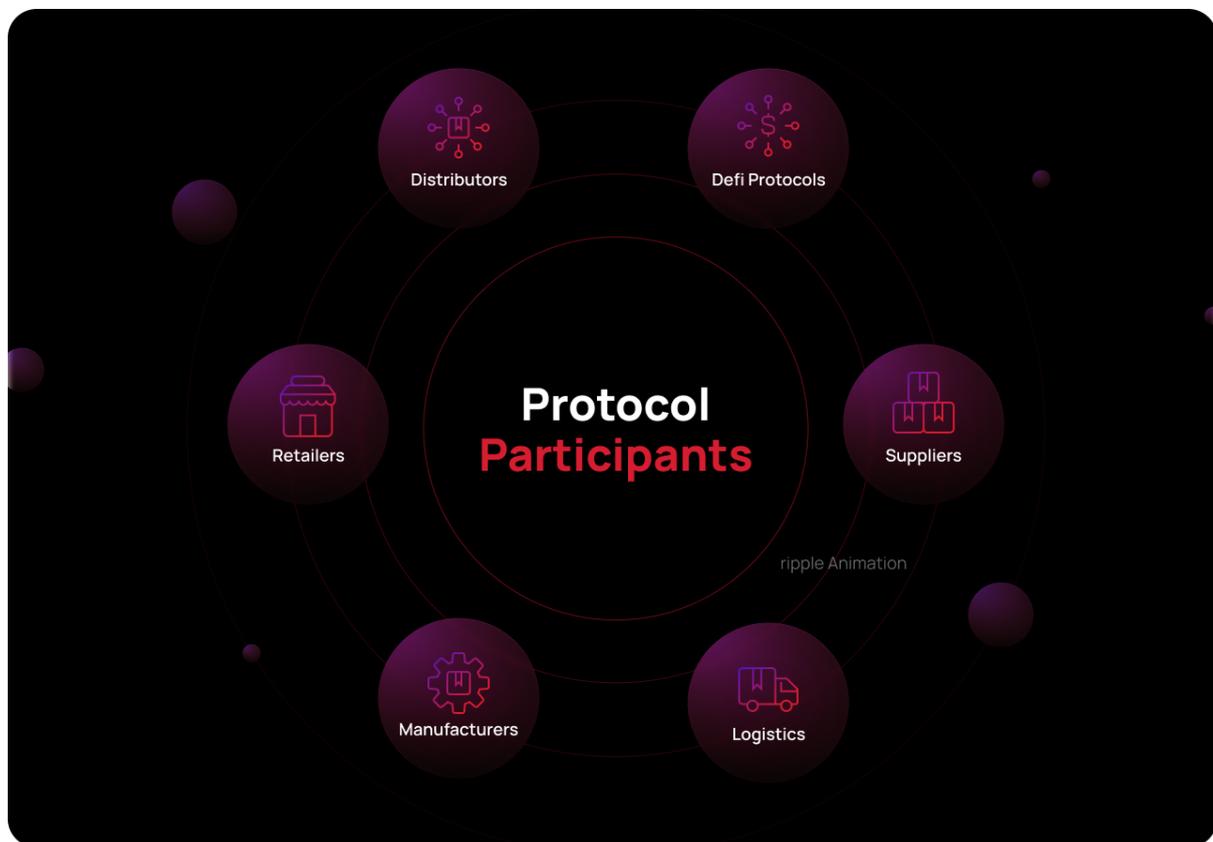
Collateral insurance: Protocol doesn't provide for internal collateral insurance in case of black swan event leading to liquidity crunch in the system. Though token issuers

Integration with other lending protocols at native level provides for direct access to billions of dollar worth liquidity to businesses and vice-versa opens other avenues for enterprises to earn passive income on their capital sitting idle on their balance sheet.

Network Architecture

Network participants

Trace Network will have participation from a vast variety of ecosystem players who are participants of the overall value chain. Not just the traditional businesses, Trace network will also include various different defi protocols across various different blockchains to be part of the protocol ecosystem hence taking part in global business trade.



Chain agnostic advanced functional contracts enabling Multi-Chain/Cross Chain composability

Trace network is built using EVM compatible smart contracts which will enable trace network to be scalable and expandable to any EVM compatible blockchain in future. Some of the core design principals following by the protocol contracts are as discussed below:

Upgradable Contracts: Trace Network contracts will be upgradable smart contracts enabling businesses to modify their code, while preserving their address, state, and balance. This allows businesses to iteratively add new features to their business transactions, or modify any bugs/business rules as per the changes in the business environment.

Nested Contracts: Trace Network is targeted to solve the business needs for enterprise businesses, hence designing a protocol for enterprises requires a lot of micro branching of functionalities as not all businesses operate in the same manner. Thus ensuring the capabilities for businesses to have their custom features/functionalities while retaining the core engine intact thus retaining cross module referencing abilities intact.

Functional Contracts: As trace network is going catering to a wide variety of features and needs of businesses, hence whole protocol is built in as independent functional contracts which will be reused and referenced into cross functional mesh to enable businesses, to build their custom products and functionalities on top of the protocol.

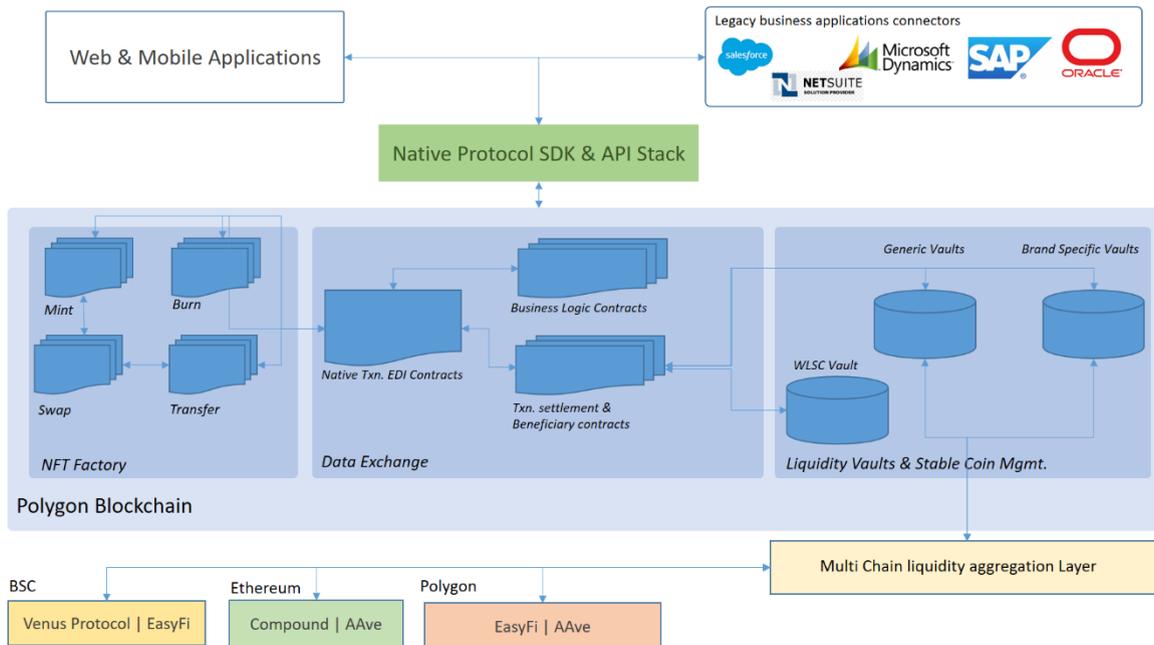
Capital Vaults: There will be dedicated contracts designed for managing the capital commitment for financing needs of specific brands, hence liquidity will either be flowing into these brand dedicated capital vaults or will be allowed to be taken from common vaults. There will be more specific interest rate models w.r.t vaults be discussed in a follow-on paper.

Proxy Contracts for Settlement beneficiary updates: Trace network is going to facilitate lot of trade financing and settlement options, hence will require various beneficiaries to be updated from time to time as part of credit delegation process being triggered by proxy contracts. Hence delegation and beneficiary update process will be built into native smart contracts of the protocol, ensuring there is secure whitelisted addresses, i.e. addresses which were configured as counterparties while creating various business transactions are only used as whitelisted addresses.

EDI Standard factory contracts for business transactions: Trace network is going to implement global EDI business transaction standards into the smart contracts for implementation of cross business data exchange which will also be used as “Proof of Business” enabling trade financing. Various standard EDI standards like EDI-850 (Purchase Orders), EDI – 856 (Shipment Notice) etc.

Protocol Architecture

Trace network is designed in a complete modular fashion to enable seamless multi-dimensional scalability of the protocol aligned with its’ expansion into various different industries and utility.



Core protocol components:

Core Trace Network protocol is build up of three main modules: NFT Factory, Data Exchange, Liquidity Vaults including vaults managing supply and stability of white label branded stable coins.

NFT Factory: NFT factory will manage all the various functions and features responsible for minting, burning, swap & transfer of NFTs in the Trace ecosystem at the protocol level. This will be set of various smart contracts utilizing standard ERC standards like 721 and 1155 as per the specific function and roles of the respective NFTs in the protocol functionalities.

Data Exchange: Data Exchange will primarily enable communication of data across various different businesses within a business network. This data exchange is built on the thesis of EDIs standards which are prevalent since 1970s. However, with advancement of technology like Blockchain, implementation of more secure, scalable and decentralized Peer (Business) to peer (Business) networks is now possible. This data exchange layer will primarily have a farm of various factory contracts weaved into a process flow that the organizations will subscribe to. However, each EDI standard transaction contract will have three main parts:

Native transaction Contract: These contracts will govern the fundamental function and behaviour of the transactions like Purchase Orders, Shipment Intimation, Invoices etc and will be basis of standard EDI definitions to be packaged into an NFT based envelop for transmission to the recipient address.

Business Logic Contracts: These contracts will be responsible for implementation of various business logics and rules, to be implemented by various business network

participants. In general, these contracts are going to be responsible for effective state update of the transaction hence, triggering the events in the overall process chain.

Settlement & Beneficiary Contracts: These contracts will hold the financial beneficiaries of the transaction and will also contain the settlement history of each respective transaction, hence will be interacting with various defi contracts and vaults which are spread across multiple different blockchains via a native liquidity aggregation layer. As a result of various trade finance transactions, these contracts will get updated via a proxy contract call for replacing and updating the beneficiary address for recipient of funds after complete settlement of a business's financial transaction.

Design Ethos

Interoperability

Trace Network's composable software stack ensures that other DeFi protocols and applications are built to integrate and complement Trace protocol. With inherent composability capabilities, developers and product teams have the flexibility to build on top of Trace protocol, customize interfaces, and integrate third-party applications. This applies to cross-chain & multichain integrations too.

Programmability

Trace Network's highly programmable smart contracts automate the execution of enterprise-grade and enable the creation of new financial modules & processes and digital assets through mintable NFTs.

Immutability

Tamper-proof data coordination across networks connected through blockchain's decentralized architecture increases security and auditability.

“Proof of Business” consensus

Proof of business means network participants interact & validate transactions based on submitted and recorded financial docs. For instance, invoices, order estimates, bill of lading, bill of despatch, and other business-related information is stored and validated through POS nodes to validate transaction finality and completion of the transaction on the network.

Network agnostic

Trace Network's protocol architecture has been designed to keep it agile & chain agnostic which means the protocol is capable to interact and deploy on any EVM-compatible network. The protocol's inherent capabilities of cross-chain interaction, interoperability & multi-chain integration make it unique and developer-friendly. It also opens up the network for experimentation and innovation to the developer community.

Network security

The protocol has been designed to ensure the security of assets and data stored on the network through a POS-based consensus mechanism facilitated by "Proof of Business". Since multi & cross-network interaction needs an additional layer of security in comparison to captivated networks, the security logics, configuration are designed keeping in view the highest standards so required for the purpose.

Governance & community control

Governance

We believe community participation and control are pertinent to pursue the spirit of decentralization. The protocol, we believe, after a certain point of time has to be governed by network participants. Therefore, a POS-based staked weighted voting mechanism would be introduced where stakeholders shall be able to participate in day-to-day activities & development of the protocol for the ultimate benefit of the community.

POS-based stake weighted participation

Network participants viz. distributors, retailers, manufacturers, logistics handlers, suppliers, and other protocols who tend to integrate would need to maintain a certain deposit/stake of TRACE to function as a guarantee of service standards, ensure 'skin in the game' and provide active participation & an additional layer of security for smooth functioning.

Voting

Network users & stakeholders would be able to submit a proposal to the community and ask for their votes. A dedicated forum shall be maintained, curated for the purpose to ensure equal participation from the community members. Periodical voting on these proposals shall be conducted for democratizing operations of the protocol.

Trace token utility

The native digital cryptographically-secured token of the Trace Network (**TRACE**) is a transferable representation of attributed governance and utility functions specified in the

protocol/code of the Trace Network, and which is designed to be used solely as an interoperable utility token on the network/protocol.

Governance

TRACE would allow holders to propose and vote on on-chain governance proposals to determine future features and/or parameters of the Trace Network as well as protocol improvements (the right to vote is restricted solely to voting on features of the Trace Network; it does not entitle TRACE holders to vote on the operation and management of the Company, its affiliates, or their assets or the disposition of such assets to token holders, and does not constitute any equity interest in any of these entities, and the arrangement is not intended to be any form of joint venture or partnership).

Protocol incentivization

Via various incentive programs, TRACE provides the economic incentives which will be distributed to encourage users to contribute to and maintain the ecosystem on the Trace Network, thereby creating a win-win system where every participant is fairly compensated for its efforts. TRACE is an integral and indispensable part of the Trace Network, because without TRACE, there would be no incentive for users to expend resources to participate in activities or provide services for the benefit of the entire ecosystem on the Trace Network. Given that additional TRACE will be awarded to a user based only on its actual usage, activity and contribution on the Trace Network, users of the Trace Network and/or holders of TRACE which did not actively participate will not receive any TRACE incentives.

Protocol participation

TRACE is the functional utility token which will be used as the medium of exchange and platform currency for transactions between participants on the Trace Network. The goal of introducing TRACE is to provide a convenient and secure mode of payment and settlement between transaction participants who interact within the ecosystem on the Trace Network, and it is not, and not intended to be, a medium of exchange accepted by the public (or a section of the public) as payment for goods or services or for the discharge of a debt; nor is it designed or intended to be used by any person as payment for any goods or services whatsoever that are not exclusively provided by the issuer. TRACE does not in any way represent any shareholding, participation, right, title, or interest in the Company, the Distributor, their respective affiliates, or any other company, enterprise or undertaking, nor will TRACE entitle token holders to any promise of fees, dividends, revenue, profits or investment returns, and are not intended to constitute securities in Singapore or any relevant jurisdiction. TRACE may only be utilised on the Trace Network, and ownership of TRACE carries no rights, express or implied, other than the right to use TRACE as a means to enable usage of and interaction within the Trace Network.

Functionality

Rewards

A major portion of TRACE's total supply is to be distributed among network users for active participation in the network. All users which have participated in transactions and interactions in the platform, for example minting NFTs, peer-to-peer transactions, participating in trade financings, settlement of trades, active governance, will receive TRACE to incentivise their participation in the network.

White label stable coin collateral

Companies will have to stake a certain level of TRACE tokens for minting their stable coins to be used within their business network. A portion of these stable coins will be taken out of circulation supply on each transfer. Thus impacting the C Ratio of stable coin.

Interoperability & cross-chain settlement

As the native platform currency, TRACE will be used as a unit of settlement for all cross-chain settlement and a reconciliation unit for multi-chain interaction including inter & intra-chain transactions.

NFT minting & settlement

TRACE will be used as a base token "fuel" to mint, acquire NFTs, and for the settlement of minted NFTs over the network and ecosystem. TRACE will be required to be able to use and interact with various NFTs in the ecosystem of Trace network.

Trade & commerce

TRACE will act as a settlement & accounting unit for the exchange of value among different enterprises on the network. TRACE will act as a base layer of settlement & stability unit for all business transactions empowered by proprietary white label algorithmic stable coins.

In particular, it is highlighted that TRACE: (a) does not have any tangible or physical manifestation, and does not have any intrinsic value (nor does any person make any representation or give any commitment as to its value); (b) is non-refundable and cannot be exchanged for cash (or its equivalent value in any other digital asset) or any payment obligation by the Company, the Distributor or any of their respective affiliates; (c) does not represent or confer on the token holder any right of any form with respect to the Company, the Distributor (or any of their respective affiliates), or its revenues or assets, including without limitation any right to receive future dividends, revenue, shares, ownership right or stake, share or security, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property or licence rights), right to receive accounts, financial statements or other financial data, the right to requisition or participate in shareholder meetings, the right to nominate a director, or other financial or legal rights or equivalent rights, or intellectual property rights or any other form of participation in or relating to the Trace Network, the Company, the Distributor and/or their service providers;

(d) is not intended to represent any rights under a contract for differences or under any other contract the purpose or pretended purpose of which is to secure a profit or avoid a loss; (e) is not intended to be a representation of money (including electronic money), security, commodity, bond, debt instrument, unit in a collective investment scheme or any other kind of financial instrument or investment; (f) is not a loan to the Company, the Distributor or any of their respective affiliates, is not intended to represent a debt owed by the Company, the Distributor or any of their respective affiliates, and there is no expectation of profit; and (g) does not provide the token holder with any ownership or other interest in the Company, the Distributor or any of their respective affiliates.

Notwithstanding the TRACE distribution, users have no economic or legal right over or beneficial interest in the assets of the Company, the Distributor, or any of their affiliates after the token distribution.

To the extent a secondary market or exchange for trading TRACE does develop, it would be run and operated wholly independently of the Company, the Distributor, the distribution of TRACE and the Trace Network. Neither the Company nor the Distributor will create such secondary markets nor will either entity act as an exchange for TRACE.

RISKS

You acknowledge and agree that there are numerous risks associated with acquiring TRACE, holding TRACE, and using TRACE for participation in the Trace Network. In the worst scenario, this could lead to the loss of all or part of TRACE held. **IF YOU DECIDE TO ACQUIRE TRACE OR PARTICIPATE IN THE TRACE NETWORK, YOU EXPRESSLY ACKNOWLEDGE, ACCEPT AND ASSUME THE FOLLOWING RISKS:**

Uncertain Regulations and Enforcement Actions

The regulatory status of the Trace Network, TRACE and distributed ledger technology is unclear or unsettled in many jurisdictions. The regulation of digital assets has become a primary target of regulation in all major countries in the world. It is impossible to predict how, when or whether regulatory agencies may apply existing regulations or create new regulations with respect to such technology and its applications, including TRACE and/or the Trace Network. Regulatory actions could negatively impact TRACE and/or the Trace Network in various ways. The Company, the Distributor (or their respective affiliates) may cease operations in a jurisdiction in the event that regulatory actions, or changes to law or regulation, make it illegal to operate in such jurisdiction, or commercially undesirable to obtain the necessary regulatory approval(s) to operate in such jurisdiction. After consulting with a wide range of legal advisors to mitigate the legal risks as much as possible, the Company and Distributor have worked with the specialist blockchain department at Bayfront Law LLC and obtained a legal opinion on the token distribution, and will be conducting business in accordance with the prevailing market practice.

Inadequate disclosure of information

As at the date hereof, the Trace Network is still under development and its design concepts, consensus mechanisms, algorithms, codes, and other technical details and parameters may be constantly and frequently updated and changed. Although this whitepaper contains the most current information relating to the Trace Network, it is not absolutely complete and may still be adjusted and updated by the Trace Network team from time to time. The Trace Network team has no ability and obligation to keep holders of TRACE informed of every detail (including development progress and expected milestones) regarding the project to develop the Trace Network, hence insufficient information disclosure is inevitable and reasonable.

Competitors

Various types of decentralised applications and networks are emerging at a rapid rate, and the industry is increasingly competitive. It is possible that alternative networks could be established that utilise the same or similar code and protocol underlying TRACE and/or the Trace Network and attempt to re-create similar facilities. The Trace Network may be required to compete with these alternative networks, which could negatively impact TRACE and/or the Trace Network.

Loss of Talent

The development of the Trace Network greatly depends on the continued co-operation of the existing technical team and expert consultants, who are highly knowledgeable and experienced in their respective sectors. The loss of any member may adversely affect the Trace Network or its future development. Further, stability and cohesion within the team is critical to the overall development of the Trace Network. There is the possibility that conflict within the team and/or departure of core personnel may occur, resulting in negative influence on the project in the future.

Failure to develop

There is the risk that the development of the Trace Network will not be executed or implemented as planned, for a variety of reasons, including without limitation the event of a decline in the prices of any digital asset, virtual currency or TRACE, unforeseen technical difficulties, and shortage of development funds for activities.

Security weaknesses

Hackers or other malicious groups or organisations may attempt to interfere with TRACE and/or the Trace Network in a variety of ways, including, but not limited to, malware attacks, denial of service attacks, consensus-based attacks, Sybil attacks, smurfing and spoofing. Furthermore, there is a risk that a third party or a member of the Company, the Distributor or their respective affiliates may intentionally or unintentionally introduce weaknesses into the core infrastructure of TRACE and/or the Trace Network, which could negatively affect TRACE and/or the Trace Network. Further, the future of cryptography and security innovations are highly unpredictable and advances in cryptography, or technical advances (including without limitation development of quantum computing), could present unknown risks to TRACE and/or the Trace Network by rendering ineffective the cryptographic consensus mechanism that underpins that blockchain protocol.

Other risks

In addition, the potential risks briefly mentioned above are not exhaustive and there are other risks (as more particularly set out in the Terms and Conditions) associated with your participation in the Trace Network, as well as acquisition of, holding and use of TRACE, including those that the Company or the Distributor cannot anticipate. Such risks may further materialise as unanticipated variations or combinations of the aforementioned risks. You should conduct full due diligence on the Company, the Distributor, their respective affiliates, and the Trace Network team, as well as understand the overall framework, mission and vision for the Trace Network prior to participating in the same and/or acquiring TRACE.