Tgrade

Whitepaper v1.0

13th November 2020

THIS WHITEPAPER DESCRIBES TGRADE DEVELOPMENT, INCLUDING PLANS TO CREATE A BLOCKCHAIN-BASED MARKET SURROUNDING REGULATED DECENTRALISED FINANCE. THIS WHITEPAPER IS INTENDED TO STIMULATE DISCUSSION AS A MEANS OF FURTHER REFINING TGRADE'S BUSINESS PLANS, TECHNOLOGICAL APPROACH, AND PATH FOR IMPROVING THE EFFICIENCY OF THE MARKET FOR REGULATED DECENTRALISED FINANCE.

THIS WHITEPAPER IS NOT INTENDED AS A COMPLETE CATALOG OF THE MARKET, TECHNOLOGICAL, LEGAL AND OTHER RISKS RND MAY FACE. IN ADDITION, TGRADE'S PROPOSED ISSUANCE OF CRYPTOCURRENCY TOKENS DISCUSSED IN THIS WHITEPAPER IS SUBJECT TO THE HIGHLY UNCERTAIN REGULATORY ENVIRONMENT REFERENCED BELOW. THIS WHITEPAPER IS NOT INTENDED TO BE A PROSPECTUS OR OFFER OF OR SOLICITATION FOR INVESTMENT IN TGRADE OR ITS PROPOSED TOKENS.

Introduction

Tgrade is a secure blockchain in the Cosmos ecosystem firmly aimed at the DeFi space.

DeFi or Decentralised Finance has been a phenomenon on the Ethereum blockchain with many innovative products being launched. What they all have in common is that they have no intermediaries and ensure, by using collateral, that the transactions are guaranteed. The growth, measured in Total Value Locked (TVL) in DeFi on Ethereum has grown substantially in 2020.

The Cosmos Hub is one of the top 30 blockchains by market capitalisation and is the centre of a federation of blockchains which can communicate using the IBC protocol. The introduction of CosmWasm, a product built by Confio, enables multi-chain smart contracts which opens up a new DeFi market that can run across blockchains.

How do Etherum and Cosmos compare? Ethereum has an established DeFi market, and has a strong community with a good set of tools around it. That said, there have been issues with network traffic and the fees have risen dramatically in response to the demand. Cosmos is a federated ecosystem of blockchains, with fast network speeds and low fees.

A series of deliverables establishes the chain, brings in liquidity through pegs[1] to Ethereum and Bitcoin, the establishment of an Automated Market Maker, introduction of innovative DeFi products and an ambition to create a fully regulated market.
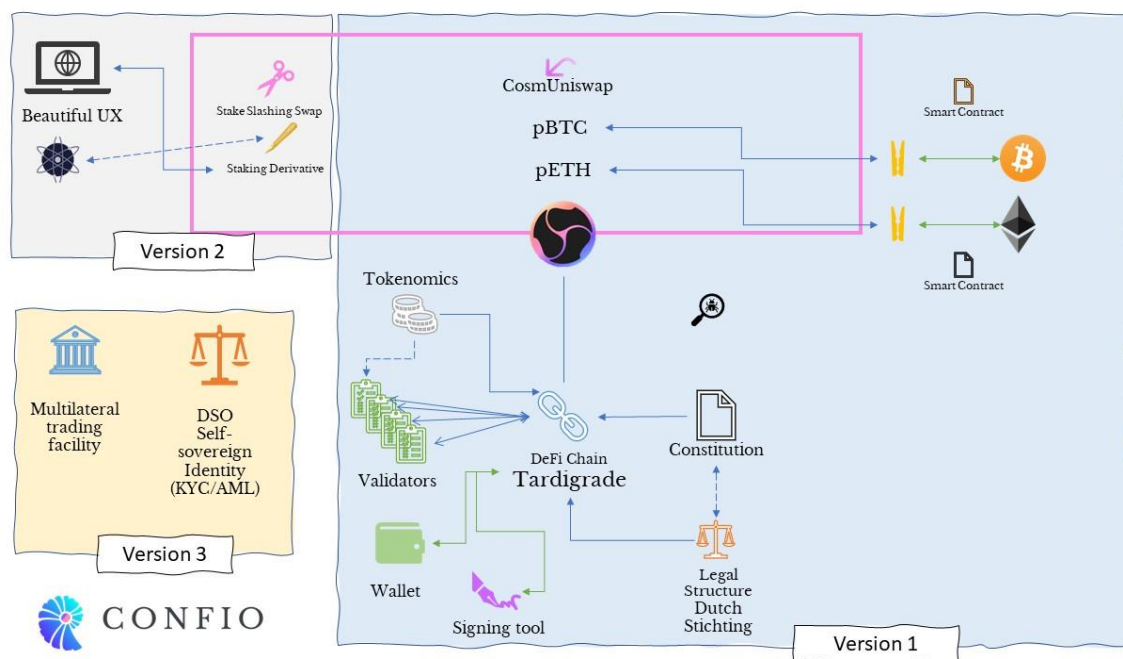

Figure 1 High level view of the components needed.

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[1] A peg is a connection to a blockchain where tokens are locked on one chain and minted on another chain, and in reverse a token is burned on the chain and the corresponding token unlocked.

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Decentralised Finance. Why now?

Decentralised Finance or DeFi has emerged on the Ethereum blockchain and was made possible by the ability for people deploy smart contracts and build businesses.

Unlike the ICO craze of 2017 where there was a rush of projects with a whitepaper and a prayer that raised millions, the DeFi products being launched are real businesses with a revenue model and clear benefits.

The DeFi products are simple, partly due to the constraints of the scripting language, and easy for people to understand.

The early experiments with Decentralised Exchanges (DEX) came up with issues around the order book mechanism. It was possible to sign a transaction with very high fees to incentivise the miners to include the transaction as a priority and effectively front run orders. Additionally, there were also issues around liquidity with new exchanges when they are launched.

The biggest competition for DeFi and DEX comes from the centralised exchanges (CEX) which offer a very good user experience and liquidity, however, it comes at a price as the tokens at the CEX are held by the exchange not only becoming honey pots for hackers but there is a loss of ownership.

The trend for DeFi is a combination of mistrust of the large CEX platforms, ease of use and compelling products with good returns. This has fuelled the growth of Total Value Locked in DeFi on Ethereum for the 12 months to August 2020 by 1,412%[2]

What is Cosmos? Why build in the ecosystem?

With all the DeFi action on Ethereum, with the first mover advantage, liquidity, strong community and demonstrable innovation in the space, why Cosmos?

Cosmos differs from Ethereum in that it is a federation of blockchains, and the highly anticipated launch of the IBC protocol will allow true interoperability between chains.

Why is this a big deal? Having chains being able to communicate means that it becomes possible to create "mash ups" around the services of the various chains, allowing the developers to concentrate on what is specific in their chain.

A valuable module in this ecosystem, the smart contracting engine CosmWasm, built by Confio allows any chain that is built with Cosmos Software Development Kit (SDK) to add it to their chain. What this brings is the ability to write and deploy smart contracts and is configurable so that the chains control whether it is permissioned or permissionless. This means that the chains can bring applications to market quicker and have the control whether they allow anyone to run smart contracts on their chains or whether there is an approval process through governance.

CosmWasm was designed to address many of the known vulnerabilities seen in Ethereum smart contracts meaning it is much safer to deploy smart contracts.

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[2] source https://defipulse.com/

Cosmos chains have a higher capacity and as a consequence more stable fees, while the variable gas price in Ethereum is good at regulating demand it does lead to unpredictability and uncertainty.

Cosmos as a hub, as of October, has a market capitalisation of $0.9bn and is the 23rd largest chain by capital.

Tgrade launch

The Tgrade launch is to establish a secure blockchain with the Proof of Engagement model and a first set of smart contracts to build the DeFi landscape.

Proof of Engagement

The rationale of Proof of Engagement (PoE) is to create an incentive mechanism that builds a strong and collaborative community around the Tgrade chain.

A whitepaper that sets out Proof of Engagement and compares it to both Proof of Authority and Proof of Stake.

The models have been developed that simulated several scenarios and have shown that the PoE is resistant to centralisation.

The initial architecture shows how PoE is built using smart contracts which are run in the CosmWasm engine.

The highly decentralised, secure chain built with Proof of Engagement is a cornerstone for the plans of Tgrade.

Liquidity

With the introduction of IBC there is potential to connect with the Cosmos Hub and other zones, and not only introduces liquidity but opens up custom products with unique benefits such as connections with e-money as a conduit to fiat and an option to add credit card purchasing.

Bitcoin and to a lesser extent Ethereum represent a large, liquid pool of traded assets and a such are a priority to bring liquidity to Tgrade. Many Bitcoin investors follow a buy and hold strategy, what a peg enables them to do is to lock their Bitcoin and mint pegged Bitcoin in the Tgrade chain and lend them out to earn interest using a DeFi product.

The pegging of Ethereum has two purposes, firstly it brings liquidity of the Ethereum tokens and secondly it makes the ERC20 tokens available, including the DeFi products.

By pegging Bitcoin, Ethereum and the related ERC20 tokens and issuing pegged tokens is the first step of introducing liquidity to Tgrade.

Creating the pegs is not a trivial exercise, however, through partnerships with Althea and Nomic this can be accomplished much quicker leveraging the work they have done under open source. Althea is building out peggy, having built the smart contracts on Ethereum, and is working with Confio to build out the Cosmos SDK side. Nomic have built the Bitcoin smart contracts and, again, Confio will build the Cosmos integration.

Automated Market Making

Adding Automated Market Making (AMM) leverages the liquidity of the pegged tokens, ATOMS and the native Tgrade token TGD.

The Uniswap v2.0 is the starting point for the AMM as it has proven to work and porting the code to a Smart Contract is easier than writing one from scratch. Note the Uniswap v2.0 implementation in Ethereum cannot be directly ported, the Tgrade version is built from the original paper and specification.

The AMM relies on a liquidity pool and an algorithm that determines the price based off supply and demand. Initially the fees levied are set at 0.3% on the AMM for every transaction, the fees will be adjusted by governance over time to ensure the fees remain competitive.

The Uniswap model is a very simple market making model and there is room to improve it but it has demonstrated that it is very robust and has been stress tested in the real world.

Innovation on Tgrade

Having launched with the basics, namely liquidity and AMM Tgrade presents a strong platform to innovate in the DeFi product space. This is a second phase of the roadmap.

Liquid Staking

These are important for Proof of Stake chains as much of the tokens are locked in stake.

While the locking of tokens is important for the security of the chain by creating scarcity of supply to increase the token price and for token holders to earn a yield there are opportunities in DeFi create derivatives of these staked tokens.

The way a derivate or liquid token is created is to use the staked tokens as collateral with a haircut applied. These liquid tokens can then be used in the AMM to buy other tokens or to lend them out to earn interest.

Structuring the liquid tokens is important and care must be taken to consider what the implications of a slashing event are and what the impact of extreme price events have on the collateral.

Importantly for the adoption of liquid tokens a super easy website is needed to create, trade and manage the tokens.

Financial Engineering

A big prize is around developing DeFi products and bringing innovation to Tgrade.

There are many established Structured Products in traditional finance that are well understood from a pricing, risk management aspect. These can be taken as a basis for the development of new DeFi products.

> **Example**
>
> A Slashing event has an impact on staked tokens in a similar way to a default of a fixed income product. The fixed income market has credit default swaps (CDS) as a way for the holder to pay a premium to another party willing to underwrite the credit risk. The CDS can be adapted to a Stake Slashing event to create a Stake Slashing Swap, note that this could be issued for a single validator or a basket of validators.

> The slashing events covered could be the non-malicious events such as being offline rather than providing an incentive to double sign.
>
> There is data for each validator that is captured around up-time, and whether they have had a previous slashing event which would determine the risk profile and hence the premium.

The key in designing the DeFi instruments is to ensure that there is the right collateral in place and that the products work in a fully decentralised manner. To keep the DeFi products fully decentralised the structure will need a DAO and governance tokens.

Regulated DeFi

The third phase of the roadmap is to work towards creating the infrastructure towards a regulated DeFi market. We believe the future of DeFi is regulated. While the growth of DeFi in 2020 has been impressive the total value of DeFi is a few billion compared to the traditional markets where, for example, derivatives and foreign exchange is measured in thousands of trillions of dollars.

While much of the effort in the crypto space has been about avoid regulation with a libertarian view that the individual should be free to choose how they invest. Regulations exist to ensure fair markets and to protect individual investors and for that reason it is important that DeFi works within the regulations while retaining the ability to innovate fast.

Given the background of negative interest rates, inflated asset prices due to quantitative easing and asset buying from central banks there is an appetite for finding assets with good returns. The barrier to regulated institutions in participating in DeFi is the lack of a regulated marketplace.

Our ambition is to build the governance frameworks to allow self-sovereign communities to grow and organise themselves around regulations and innovate with DeFi products aimed at the institutional markets.

The challenge in creating a regulated market is to find a way to make the DeFi products compliant. That requires compliance in the classification, issuance, of the products. Ensuring the suitability for either retail or institutional investors. Creating a regulated "marketplace" for the products to be traded. While some of this is counter intuitive for DeFi it is important for a first move to match the regulations rather than persuading the regulators to change the rules for crypto. Note this would need repeating for every regulator, and a first move should be EU where there is passporting to all 27 countries. Note the EU/ESMA have proposed setting up pilot schemes[3] to fast-track experiments in DLT.

It is a slow and costly exercise, but the rewards are large. Confio is well positioned, as we draw on experience and connections in financial markets, and in addition to an extremely strong blockchain development team.

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[3] https://ec.europa.eu/commission/presscorner/detail/en/QANDA_20_1685

Stichting Ocean Blue

The Stichting Ocean Blue is a not-for-profit foundation registered in the Netherlands. The definition of a Dutch Foundation or Stichting: "A stichting is a Dutch legal entity with limited liability, but no members or share capital, that exists for a specific purpose. This form of entity makes it possible to separate functions of ownership and control."[4]

The structure makes it good vehicle for a blockchain and has been used by other projects such as PayAccept based in Eindhoven, Netherlands.

The Stichting commissions the Operating Company to undertake the core chain development through grant allocations.

Tokens (TGD)

Firstly, a token is needed as a utility to ensure there are transaction fees collected, transaction fees are a requirement for anti-spam measures.

Secondly establishing robust tokenomics is vital as this is the lifeblood of the chain and will determine whether Validators will come on board and whether people will buy the tokens.

Initial token distribution

The initial token distribution is to ensure that the tokens are equitably distributed. The pre-sale of tokens for seed funding is a private placement and will not involve a public sale.

The tokens are to be distributed as follows

- ECOSYSTEM *55%*
    - Validators 20 – 30%
    - Partners 20 - 30%
    - Advisers 5%
- TEAM *25%*
    - Confio GmbH/Employees 7%
    - Foundation 10%
    - Employees 8%
- FUNDING *20%*
    - Pre-Sale
    - Reserves

The tokens allocated to the Ecosystem, and Team are vested for 6-18 months.

Token Economics

The token economics model is rooted in the [Proof of Engagement](#) model, where the chain revenue is distributed according to engagement rewards and where applicable stake.

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[4] https://en.wikipedia.org/wiki/Stichting

Block Rewards

The bock rewards are minted at a constant 10% APR, unlike Cosmos Hub variable this is the more aligned with the Polkadot model.

The block rewards will be distributed via PoE to the engaged community, including validators as well as others people who make significant contributions to the chain

Staking, bonding and un-bonding

The Proof of Engagement paper and PoE architecture paper describe the staking, bonding and un-bonding periods.

The mechanism provides a 3 week un-bonding period, where the tokens are slashable if a double-signing event is found retroactively. Otherwise we provide equivalent guarantees as the Cosmos Hub on staked tokens

Fees and Commissions

The fees and commissions will vary and the fees will adjust with the market.

- Transaction fees, such as governance proposals, and smart contract gas fees.
- Commissions from central dApps such as AMM, and the Pegs.

Audit

An audit is required on the chain code before launch of the mainnet to check for potential security issues. An independent auditor is being identified.

Bounty Program

A bounty program will be put in place for launch.

Forward-Looking Statements

This Whitepaper includes "forward-looking statements", which are all statements other than statements of historical facts included in this Whitepaper. Words like "believe", "anticipate", "expect", "project", "estimate", "predict", "intend", "target", "assume", "may", "might", "could", "should", "will" and similar expressions are intended to identify such forward-looking statements. Such forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause the actual functionality, performance or features of the Tgrade blockchain and/or TGD to be materially different from any future functionality, performance or features expressed or implied by such forward-looking statements. Such forward-looking statements are based on numerous assumptions regarding the Confio and/or any of its affiliates' present and future expectations regarding the development of the Tgrade blockchain and the associated software.

These forward-looking statements speak only as of the date of this Whitepaper. Confio and its affiliates expressly disclaim any obligation or undertaking to release any updates of or revisions to any forward-looking statement contained herein to reflect any change in Confio and/or any of its affiliates' expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.