

morpheXX

LITEPAPER

Introduction

Welcome to Morphex

Morphex is an emerging decentralized exchange offering spot and perpetual futures trading while requiring only a wallet connection to use. All trades are settled against the Morphex Liquidity Pool ("MLP"), where a user would be able to provide liquidity with any whitelisted asset, and in exchange, they would receive MLP tokens, representing their share in the diversified liquidity pool.

Morphex is a new era of DeFi perpetual trading that offers traders multiple advantages compared to traditional exchanges. **Morphex** provides low transaction fees, eliminates price impact and provides protection against "scam wick" liquidations, while enabling traders to retain full control of their assets.

Problem

With the recent bankruptcy of FTX, it's been cited that between \$1-2 billion in consumer funds could not be accounted for, and this event has been described as "**one of the biggest financial frauds in American history**". It's become more evident than ever that users require full transparency of their exchanges and control over their assets.

The major impediment to non-DeFi natives is the difficulty in understanding the concept of DeFi and subsequently how to keep their crypto assets safely. The current onboarding process is a UX nightmare for many, with stories of users losing their assets due to confusion and scams run rampant.

When we move on to the topic of then interacting with dApps on blockchains, these same stories hold their ground. Very few applications have been able to provide the UI/UX required for accelerated larger adoption, and Morphex aims to solve these issues in the decentralized derivatives space on Fantom.

Solution

For Morphex's launch on the smart contract side, we've decided to initially use the battle-tested and audited contracts of GMX. Aside from being already proven, when comparing the perpetual model of GMX to other existing solutions, it's clear that this model is able to provide the most liquid slippage-free perpetuals for users. While liquidity providers aren't losing out compared to arbitrageurs and are actually earning significant real yield.

The unique **shared liquidity model** allows for the simultaneous offering of spot and perpetual trading. This means that the model not only offers leverage to traders, but also often provides the best trading prices to regular aggregators because there is no price impact.

Solution

On the UI side, we're proud to be able to soon present what we believe will be a superior user experience on Fantom for derivatives trading, while at the same time limiting the confusion for new users joining the platform. This also includes plans to optimize the mobile experience for decentralized trading.

By building on the Fantom blockchain, we are able to leverage the Fantom Foundation's upcoming developments which will ease onboarding for non-DeFi natives, people new to DeFi, as well as non-Fantom users. **For example,** account abstraction will allow users to log into their Fantom wallet with a typical Web2 login, such as with their username/password, face ID, or social ID. Furthermore, gas subsidies will allow users to interact with Morphex without having any \$FTM in their wallet for gas, allowing brand new users, or those utilizing other blockchains, to interact with the Morphex dApp without any \$FTM.

Vision

Our vision for Morphex's development includes optimizing the entire user experience for DeFi perpetual platforms, eventually releasing a fully-fledged mobile application. This aligns Morphex with the Fantom Foundation's roadmap, and growing not only real yield, but real partnerships with other protocols.

To complement the protocol's core offering, other products will be introduced that build on top of the existing model. **Some examples include** delta-neutral vaults for MLP that would integrate not only with Morphex, but with other Fantom protocols to provide users with high yields, as well as providing a robust options market for our users.

Our mission is to fully utilize the Fantom network's highly optimized blockchain technology to bring the best spot and perpetual trading experience to DeFi users.

Vision

All trades, in the beginning, will be facilitated through a singular liquidity pool that consists of multiple whitelisted assets with different weights. In the future, this will be expanded to allow for multiple liquidity pools with tokens of different categories (e.g. blue-chip assets, stablecoins, interest bearing tokens). This then allows for the opportunity to introduce voting mechanics for directing incentives between the various pools, all using the platform's governance token, MPX.

Required protocol keepers and liquidator bots will be gradually fully decentralized, utilizing proven tools such as **Chainlink Automation**.

Team

Morpheus

Founder & Developer

Nkmctsh

Front-end Developer

InvestorX

Business development

In addition to the main members, we have amazing contributors and advisors that have experience in working with various DeFi protocols, helping with community management, preparation of data reports, graphics design, and more.

Morpheus Swap

Before Morphex, Morpheus launched a protocol in the form of **Morpheus Swap** (launched in September of 2021) which has never experienced any loss of user funds or exploits, at one point managing over **\$100 million dollars in Total Value Locked (TVL)**.

We've previously already received grants from the Fantom Foundation for continued development, which helped us run a community-owned DEX as well as maintain a liquid staking derivative, while also working closely with other existing protocols on Fantom.

Tokenomics

1

Escrowed MPX

2

Multiplier Points

3

FTM Rewards

30% of fees generated from trading will be converted to FTM and distributed to staked MPX tokens.

Staking

Staked MPX will receive three types of rewards:

Supply



20%

PILLS migration



25%

Protocol incentives



10%

Team



45%

Morphex treasury

20% of MPX is reserved for the **PILLS migration**, half of which being immediately available upon launch, and the other half vesting linearly over a year.

25% to be used as **protocol liquidity incentives** in the form of an escrowed token reward, esMPX. The team will monitor and analyze the performance of incentives and balance accordingly, presenting all findings to the community.

10% to be allocated to the **team**, according to the same vesting schedule for PILLS holders – linearly over one year.

45% to be allocated to the **Morphex Treasury**. This will be used for marketing incentives, partnerships, capital-raising rounds, to provide protocol-owned liquidity, and to compensate community contributors. **Treasury expenses will be transparent and presented to the community.**

MLP

The Morphex Liquidity Pool (MLP) consists of an index of assets used for swaps and leveraged trading. It can be created (i.e. minted) using any index asset and can be redeemed (i.e. burned) to receive any index asset. The price for minting or redeeming MLP is determined by the total value of assets in the index, including profits and losses from open positions, divided by the supply of MLP

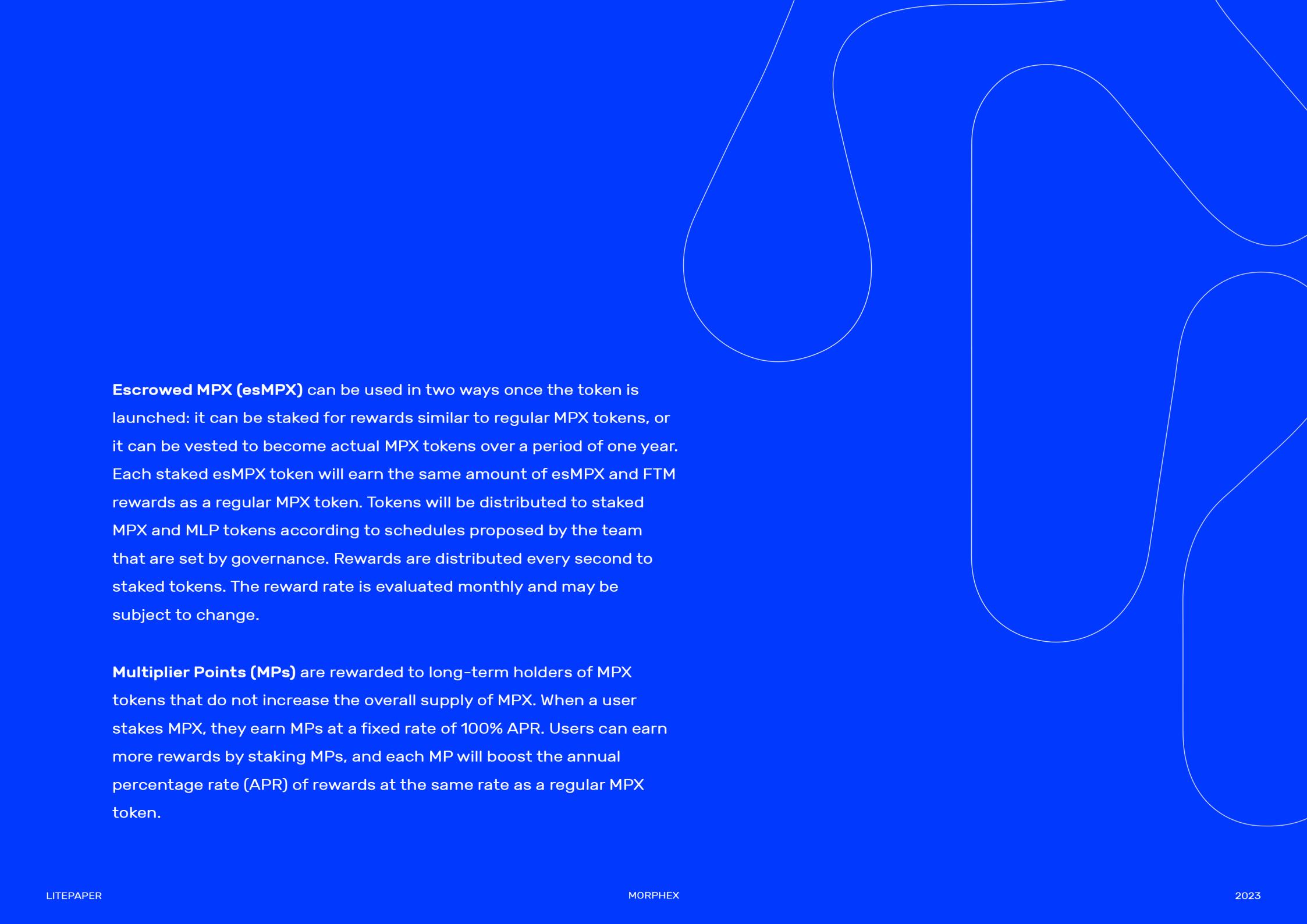
Holders of MLP earn rewards in the form of Escrowed MPX and a portion (60%) of platform fees paid in FTM. It's important to note that the fees distributed to MLP holders are calculated after deducting referral rewards and network costs for keepers.

If leverage traders make a loss, then MLP holders will make a profit, as they are providing the liquidity for trading. This also works in reverse. Past performance data, MLP price charts, and other statistics will be made available on an analytics site.

Rewards

Here is a summary of the rewards and mechanics:

- MPX tokens earn FTM, esMPX, and Multiplier Points when staked.
- esMPX tokens earn FTM, esMPX, and Multiplier Points when staked.
- Multiplier Points boost FTM APRs when staked.
- MLP tokens earn FTM, and esMPX and are automatically staked when minted.



Escrowed MPX (esMPX) can be used in two ways once the token is launched: it can be staked for rewards similar to regular MPX tokens, or it can be vested to become actual MPX tokens over a period of one year. Each staked esMPX token will earn the same amount of esMPX and FTM rewards as a regular MPX token. Tokens will be distributed to staked MPX and MLP tokens according to schedules proposed by the team that are set by governance. Rewards are distributed every second to staked tokens. The reward rate is evaluated monthly and may be subject to change.

Multiplier Points (MPs) are rewarded to long-term holders of MPX tokens that do not increase the overall supply of MPX. When a user stakes MPX, they earn MPs at a fixed rate of 100% APR. Users can earn more rewards by staking MPs, and each MP will boost the annual percentage rate (APR) of rewards at the same rate as a regular MPX token.

Trading

Swapping

Morphex supports both regular swaps and leveraged trading. Regular swaps allow users to swap various tokens with zero price impact.

Trading

Opening a position

When a user opens or closes a position, they'll pay a 0.1% fee on the size of the position, as well as a "Borrow Fee" every hour that they hold a position.

This fee is calculated based on the amount of assets they've borrowed and the total assets in the pool, and it's expressed as a percentage that varies based on utilization.

Trading

Managing Positions

A snapshot of the USD value of a user's collateral is taken when they open a position or add collateral. This value does not change even if the price of FTM fluctuates. The profit or loss they make is based on the size of your position.

The leverage of a position is calculated as

$$\frac{\text{position size}}{\text{position collateral}}$$

Note that when adding collateral to a long position, there will be a swap fee for converting the asset to its USD value (to prevent deposits from being used as a zero-fee swap). This fee does not apply to short positions or when withdrawing collateral from long/short positions.

Trading

Closing a Position



For long positions

Profits are paid in the asset the user is longing, e.g. if a user longs FTM they would receive their profits in FTM.



For short positions

Profits will be paid in the same stablecoin used when opening the position.

Trading

Order Types

Market Orders

Limit Orders (stop-loss and take-profit)

Market order trades are executed at the current oracle price, without incurring any spread for assets like FTM.

For long positions

Limit orders are executed when the ask price is less than or equal to a specified price.

For short positions

Limit orders are executed when the bid price is greater than or equal to a specified price. The fee for these orders will be more than a market order to pay for the keeper costs.

Trading

Liquidations

The **liquidation price** is the price at which (collateral - losses - borrow fee) is less than 1% of a user's position's size. If the token's price reaches this point, the user's position will be automatically closed.

The **liquidation price** can change over time due to the borrowing fee, especially with higher leverage and longer timeframe positions. If there is any collateral left after losses and fees are subtracted, that amount will be returned to the user's account.

Trading

Pricing

Trades on Morphex do not affect the price, so users can execute large trades at the mark price. During times of high volatility, there may be a spread between the Chainlink price and the median price of reference exchanges.

The 2 mark prices will be displayed next to the market name:

For long positions

It will be opened at the higher price and closed at the lower price.

For short positions

It will be opened at the lower price and closed at the higher price.

Trading

Potential Slippage

Our decentralized perpetual trading platform will operate without the traditional design of an orderbook or AMM, allowing for trades to be settled at the oracle price without any impact on the price. However, it is important to note that there may be some slippage, which is the difference between the intended and actual execution price, due to price movements between the submission and confirmation of a trade on the blockchain.

Fees

Spot Trading

Spot trading fees will vary depending on the assets being swapped. Low fees will be used to incentivize trades that cause productive assets to be deposited and unproductive assets to be withdrawn. In contrast, there will be a high fee on trades that cause unproductive assets to be deposited and productive assets to be withdrawn. This will move the allocation of assets across liquidity pools to optimal levels.

Base spot fee for volatile assets: 0.2%

Base spot fee for stable assets: 0.015%

Fees

Leveraged Trading

The cost to open or close a leveraged position is 0.1% of the position size.

If a swap is needed when opening or closing a position (such as using ETH to long FTM), the regular swap fee (0.2% to 0.8% of the collateral size) will apply. This is to prevent deposits from being used as a zero fee swap. Withdrawal of collateral from longs and shorts do not have this fee.

Fees

Leveraged Trading

Traders will be charged a borrowing fee on the total value of their position. The fee rate will increase as the utilization of a specific asset in the liquidity pool increases. This is to deter the utilization of any given asset from reaching 100% and to maintain liquidity in the pool. The borrowing fees will be deducted from the user's margin when their position is settled. The fee rate will vary continually based on utilization.

There is also an execution fee which is used to pay for the blockchain network costs.

Technical concepts

The Morphex protocol is a decentralized perpetual trading platform based off of GMX with the following main components:

Vault

Routers

Price Feeds

MLP

Technical concepts

Vault

The **Vault contract** acts as the main storage for funds and handles the main trading functions, including deposits, withdrawals, swaps, longs, shorts, and liquidations. Deposits are made through the minting of MLP tokens, while withdrawals are executed through burning MLP tokens. A long position can be opened by depositing a collateral, such as FTM, and marking an equivalent amount as reserved. A **short position** requires a deposit of stablecoins as collateral and an equivalent amount as reserved. Liquidations occur when the losses of a position reduce the collateral to a level exceeding the max allowed leverage.

Technical concepts

Routers

The Router contracts provide convenience functions on top of the Vault and are divided into two parts: the Router and the Position Router contracts. The Router handles the transfer of tokens to the Vault and wrapping/unwrapping of native tokens, while the Position Router handles increasing or decreasing long/short positions by executing transactions through keepers. The keepers are responsible for requesting the index price from an aggregate of exchanges and executing the position at the current index price. If a position cannot be executed within the allowed slippage, the request is cancelled.

Technical concepts

Price Feeds

The PriceFeed contract accepts submissions from the price feed keepers, who calculate the prices using the median price from reference centralized exchanges. **There are two types of keepers:** price feed keepers and position keepers. The vault uses the price submitted by the keeper if it falls within a set percentage of the Chainlink price. **The threshold is based on** the historical max deviation of the Chainlink price from the median price of reference exchanges. The price submitted by the keeper is valid for five minutes and reverts to the Chainlink price if it has been submitted more than five minutes ago. Liquidations can only occur when the Chainlink price reaches the liquidation price for a position.

MLP



MLP is a token that serves as the liquidity provider for the decentralized trading platform.



MLP can be created using a range of tokens within the platform's liquidity pool such as FTM or USDC.



The price of MLP is calculated based on the value of all tokens in the pool.



This calculation takes into account the profits and losses of all open positions.

Technical concepts

Security Measures

To prevent possible malicious transactions, all actions that impact user funds must go through a Timelock process mentioned above. If a malicious transaction is detected, a multi-sig can override the admin value to prevent the action from being executed.

Upgradeability

The main logic of the Morphex contracts is immutable, but certain auxiliary functions, such as fee and pricing calculations, can be updated. This is accomplished by creating new fee/pricing contracts and modifying the core contracts to utilize them.

morpheXX