

PROTOCOL WHITEPAPER

Horizon

A Lending and Liquidity Platform

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This document describes the mainnet architecture of the Horizon protocol: the code that launches on Ethereum. It is intended for informational purposes and does not constitute financial advice, a solicitation, or an offer of securities.

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01

Introduction

Horizon is one place to supply, borrow, provide liquidity and take leverage on Ethereum, with one token at the centre and a share of every fee paid back to the people who lock it.

Supply an asset and earn interest. Borrow against it from one shared market. Deposit into vaults that manage concentrated liquidity on Uniswap V3 and V4 for you. Open a leveraged position in one transaction. Back a market with a Guardian Pool stake and earn for keeping it healthy. Bid in the daily auction for HORIZON.

Every one of those activities pays a fee, and every fee reaches the same split: a share to veHORIZON holders, a share to open-market HORIZON buybacks, of which part is burned for good, and a share to the treasury. HORIZON enters circulation through protocol programmes, with no pre-mine and no team allocation at genesis. Lock HORIZON and receive veHORIZON: a weekly vote on where emissions go, the trading fees of the vaults you vote for, and a weekly share of protocol revenue.

Activity creates revenue. Revenue funds buybacks. Buybacks burn supply. Governance directs emissions.

Horizon launches on Ethereum, with Base as its first spoke, and expands across chains with one HORIZON token, one emissions budget and one treasury.

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Horizon at a Glance

What you can do on Horizon, and what each activity returns to you.

PRODUCT	WHAT YOU DO	WHAT YOU RECEIVE
Markets	Supply assets and borrow against them	Interest on supply, HORIZON emissions, and one health factor across your whole position
Vaults	Deposit into managed Uniswap V3 and V4 liquidity	HORIZON emissions on your shares, while the vault's trading fees go to the veHORIZON holders who vote for it
Multiply	Open leverage of up to 5x in one transaction	A leveraged position that is yours, closed in one transaction
Guardian Pools	Stake a market's receipt token to back it	Lending interest, HORIZON rewards and stability bonuses
Auction	Deposit ETH, TITANX or X28	A pro-rata share of the day's HORIZON, larger for those who lock or burn it
Stake	Lock HORIZON for one week to four years, or burn-lock it	veHORIZON: the emissions vote, vault fees, vote incentives and a weekly revenue share
Buy and Burn	Run a buyback step	A bounty, while protocol revenue buys HORIZON and part of it is burned
Loyalty	Use the platform and hold HORIZON	Points, a tier multiplier from 1.0x to 6.0x, a seasonal airdrop and referral rewards

Every product feeds the others. Interest, liquidation fees and vault performance fees reach the revenue split. The split pays veHORIZON holders, funds the buyback and tops up the treasury. Emissions flow to the vaults and markets holders vote for, and the fees of those vaults flow back to the voters. Auction deposits enter the same split and the same buyback.

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How Horizon Is Built

Horizon is built so that what happens to your assets is predictable, and so that each rule is audited once and holds everywhere.

A small core. The lending pool, the vault core and the HORIZON token are the core. Multiply, Liquidation Protection, the auction and the ETH gateway are built around them, so the code that holds your assets stays small and changes rarely.

One implementation of each rule. Buybacks, fee routing, swap execution and price-protected deposits each follow one shared implementation. A rule is defined once, enforced once and audited once.

Safe by default. When the protocol cannot verify a condition, it chooses the safer outcome. A price that is unavailable pauses borrowing and withdrawals against that asset, a programme with an unset ceiling mints nothing, and a new deployment starts empty until each setting is deliberately configured.

Changes in public. Upgrades, listings and every loosening of a limit go through a 24-hour timelock run by the protocol's multisig, so a change is visible a day before it lands. Tightening a limit, or pausing a component, happens at once.

Verified. Every mainnet change is rehearsed on a fork, executed through the multisig and read back against the chain to confirm that the deployed state matches the intent.

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Where the Money Goes

Every fee Horizon earns follows the same three-way split, so holding veHORIZON pays from every product at once.

REVENUE SOURCES

Horizon earns from every activity, concurrently: a share of the interest borrowers pay (the reserve factor, lowest on stablecoins and highest on volatile and vault-share collateral), a small fee on each new borrow, a protocol share of every liquidation bonus, a fee on every flash loan, a performance fee on the trading fees every vault realises, and a share of every auction deposit. A partner fee on trades routed through the Buy page goes to the treasury directly.

THE SPLIT

All other revenue reaches one place and splits three ways. The shares are protocol settings within capped, timelocked limits, the same for every revenue source, and they are published live in the app.

SHARE	DESTINATION
Holders	Paid weekly to veHORIZON holders, in the asset the revenue was earned in
Buy and Burn	Buys HORIZON on the open market; part of every purchase is burned for good and the rest goes to the treasury
Treasury	Operations, audits and ecosystem initiatives

VAULT FEES FOLLOW THE VOTE

A vault's trading fees split at the moment they are realised. The performance fee enters the split above, and the remainder goes to the veHORIZON holders who voted for that vault in that epoch, pro rata to their vote.

Rebalancing a vault, running a buyback step, sweeping accrued interest and clearing an unhealthy position are all open to anyone, and each pays its caller a bounty from the value it creates. Bounties come out of realised fees and recovered surplus, so depositor principal stays where it is.

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HORIZON and veHORIZON

HORIZON is the token every buyback buys, and locking it is how you earn a share of everything the protocol earns.

SUPPLY

HORIZON starts at zero, with no pre-mine and no team allocation. Every token enters circulation through a protocol programme: emissions to vault depositors, market suppliers, borrowers and Guardian Pool stakers; the daily auction; the loyalty season; and gas top-ups for the keepers who maintain the vaults. Each programme has a minting ceiling set through the 24-hour timelock, and a programme whose ceiling is unset mints nothing. HORIZON has no fixed maximum supply: what is minted is bounded by the budget below, and what is burned leaves supply for good.

THE EMISSIONS BUDGET

Emissions are one daily HORIZON budget, 5,000 HORIZON a day at launch, split into buckets. Holders vote on how the voted bucket is shared across vaults and markets; every other bucket is a fixed share. Bucket sizes change only through the timelock.

BUCKET	SHARE OF THE DAILY BUDGET	WHO EARNS IT
Voted	35%	Vaults and markets, by weekly veHORIZON vote
Lending floors	20%	Suppliers of every shared-market asset, equally
Daily auction	20%	That day's auction depositors
Vault floors	10%	Depositors of every launch vault, equally
Borrowing	5%	Borrowers in the shared markets
Guardian Pools	5%	Guardian Pool stakers
Season	5%	The season airdrop, by points

Alongside every emission claim, the protocol mints a further 20% to the treasury, on top of the budget, within a ceiling set through the timelock. Unspent budget stays unminted: an empty farm. or one at its cap. keeps real emissions under these figures.

Every buyback burns part of the HORIZON it acquires. Every burn-lock destroys the locked HORIZON permanently in exchange for permanent voting power.

VEHORIZON

Lock HORIZON and receive veHORIZON, a transferable position.

TERM	VALUE
Lock length	One week to four years
Voting power	$\text{Amount} \times \text{time remaining} \div \text{four years}$, falling to zero at unlock, when the HORIZON returns
Burn-lock	The HORIZON is destroyed; the position holds 2× power, forever
Vote	Standing; carries forward each week until you change it
Revenue	A weekly share of the holder leg of protocol revenue, in the asset it was earned in

A burn-lock is the maximal commitment, and the auction, the loyalty tiers and the vote all recognise it.

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Lending Markets

Supply an asset, earn interest from the moment it is deposited, and borrow against it from the same account.

ONE MARKET

Every reserve lives in one shared money market, with one health factor spanning your whole position. Each reserve is set up for its role: most can be supplied as collateral and borrowed, some are collateral only, some are supplied and borrowed with no collateral use, and long-tail assets are held in isolated positions. Suppliers receive an hToken, a receipt whose value grows as interest accrues. hTokens are standard ERC-20s, every reserve also has an ERC-4626 wrapper, and native ETH is wrapped at the edge so you can supply ETH directly.

INTEREST RATES

Interest accrues per second. Each reserve selects its rate model from a shared library. The default is an adaptive curve that retunes itself to demand, so a market's rate is set by its own borrowing; a reserve better served by a fixed, predictable shape names one. Supply APY follows the borrow rate after utilisation and the reserve factor, and the app shows interest and HORIZON emissions separately.

PRICES

Every reserve has one price feed. ETH, WBTC, wstETH and USDC price through Chainlink. Every other asset prices through Horizon's standard price feed, built from the asset's deepest onchain liquidity, weighted across several pools and checked against a manipulation-resistant reference, so a brief spike in either direction adds no borrowing power. A feed can carry a cap on the value collateral counts for, while debt is always valued at the market price. When a price is unavailable, borrowing and withdrawals against that asset pause until a healthy price returns. Feeds change only through the timelock.

CAPS

Every reserve carries a supply cap and a borrow cap, sized from measured onchain liquidation depth and bounded by what the market's Guardian Pool can back. A cap of zero is a closed market. A cap is raised through the timelock and can be cut at once.

Horizon launches with blue-chip and dollar reserves, ETH, wstETH, WBTC, USDC and USDx, and adds long-tail assets as isolated markets, TITANX first. USDx is supplied and borrowed at launch, with its collateral use a timelocked listing setting. Every listing comes from one reviewed catalogue, and every parameter leaves collateral to spare at the point of liquidation.

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Borrowing

Borrow against your collateral at any time, repay at any time, and keep risk where you put it.

HEALTH FACTOR

A position can be liquidated once its health factor falls below 1.00, the point where debt exceeds collateral valued at each asset's liquidation threshold. Health is measured across the whole account, and the app shows it live.

REPAYMENT

Repay at any time. A position on any reserve can be closed with its own collateral, through the same flash session Multiply uses, so closing takes one transaction and the collateral already in the position.

ISOLATED MARKETS

A long-tail asset lists as an isolated market. Isolated collateral backs stablecoin debt only, up to its own debt ceiling, and is the only collateral in its account, so a thin asset's risk stays contained. A new borrow against isolated collateral is a request: it is ready to claim after 15 minutes, stays claimable for 30 minutes, and every check runs again at the claim, with the collateral counted at the lower of its value at the request and at the claim. You can cancel a request at any time, and no debt exists until you claim.

SUB-ACCOUNTS

One wallet, many positions. Your main account holds cross-collateralised blue-chip positions, and each isolated market lives in its own sub-account that the same wallet controls with its own signature. The app presents them as one account.

CONSTELLATIONS

A Constellation is a named set of correlated reserves, such as ETH with its liquid staking derivatives, or the dollar stablecoins. A position that stays entirely inside a Constellation carries a higher loan-to-value and liquidation threshold, which is what makes leveraged staking positions and stable-to-stable borrowing capital-efficient.

An opt-in service for any position. You pick a health factor, and when the position falls to it, Horizon sells some of your collateral at market price to repay debt, in measured steps, so the position is restored before it reaches the liquidation penalty. Each sale is floored at the collateral's oracle value less your slippage allowance, and the trigger works only while the position sits below the level you set.

LIQUIDATION

Once a position is unhealthy, anyone can liquidate it: a liquidator repays part of the debt and takes collateral at the reserve's liquidation bonus. A partial liquidation repays only what restores the position to just above 1.00; a position too far gone, or too small to leave a meaningful remainder, is closed in full. The market's Guardian Pool, independent liquidators and the protocol's flash liquidator all compete, and whichever arrives first clears the position. If a liquidation leaves debt with no collateral behind it, the market's Guardian Pool covers the shortfall first, within its limits, and any remainder is shared across that market's suppliers.

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Multiply

Take leveraged exposure to an asset in one transaction, with a position that is yours to manage and close.

Supply a collateral asset and choose a multiplier, up to 5x on launch pairs. In a single flash session Horizon borrows against the collateral, swaps the borrowing back into it, re-supplies and repeats until the chosen exposure is reached. The resulting position sits in your account like any other, with the same health factor and with Liquidation Protection available on it.

Closing takes one transaction as well: Horizon repays the debt with a flash loan, sells just enough collateral in a single swap, within the slippage you set, and returns the rest to you. Multiply takes collateral from the shared market only, and each pair trades through a venue with the depth to serve it.

Risk. Leverage amplifies risk. A fall in collateral value moves the whole leveraged position, and a liquidation can produce a larger loss than the same fall on an unleveraged position. Liquidation Protection, when enabled, sells collateral in measured steps before the position reaches liquidation.

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Liquidity Vaults

Deposit into a Uniswap pool once, and Horizon keeps your liquidity in range for you.

HOW A VAULT WORKS

Horizon's vaults are its own contracts, built for Uniswap V3 and V4. A V3 vault holds a two-sided base position around the current price and a one-sided limit order that puts leftover inventory to work. A V4 vault holds a gaussian density curve whose width widens in fast markets. Every V3 vault launches full range on a new pair and is promoted to a tighter named profile once the pool has depth and trading history of its own, and depositors keep their shares through the change.

DEPOSITS AND WITHDRAWALS

Enter with one token or both; the vault swaps what it needs to match its current ratio in the same transaction. Every deposit and withdrawal clears against a manipulation-resistant reference price, so a single trade cannot move your share. The vault's only fee is the performance fee on realised trading fees.

REBALANCING

Rebalances are permissionless and deterministic. The vault recentres its stored shape on a manipulation-resistant reference price, so no caller can bias where the new range lands, and it waits for a steady market before it moves. The caller earns a bounty from the fees the rebalance realises, so principal stays in the position.

WHAT YOU EARN

Depositors earn HORIZON emissions on their shares in proportion to the vault's gauge weight, and holding the share is the position. The vault's trading fees, after the performance fee, go to the veHORIZON holders who voted for it that week.

LIQUIDITY AS RISK INFRASTRUCTURE

Vault depth supports the lending markets. Deep, actively managed liquidity reduces slippage during liquidations and lets the protocol set more efficient collateral parameters. The same pools are what the standard price feed reads for assets without a Chainlink feed, so deeper pools make those prices harder to move.

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Buy and Burn

Protocol revenue buys HORIZON on the open market every day, and part of every purchase is burned for good.

THREE STEPS

Buy and Burn runs in three steps through the TitanX ecosystem. ETH buys TITANX. TITANX mints X28 one for one while X28 trades at or above its peg, and buys X28 on market when it trades below. X28 buys HORIZON. Revenue enters the first step, auction deposits enter the step for their own asset, and every HORIZON that reaches the end is split between a permanent burn and the treasury.

METERED AND PERMISSIONLESS

Each step draws a metered share of its balance per day, carried forward across quiet days, and anyone can run it once its cooldown has passed. Each run is bounded to the depth of its pool, checks its price against a manipulation-resistant reference, and pays its caller a bounty from the amount drawn. Bots and third parties keep the steps running, and Horizon runs its own keeper as a floor.

SUPPLY EFFECTS

Every purchase removes part of HORIZON's supply for good. The buyback runs on protocol revenue, so what it buys follows what the protocol earns.

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Daily Auction

Buy HORIZON at the price the day's depositors set together, and earn a larger share by committing for longer.

A new auction opens every day. The day's allotment is the auction's share of the emissions budget, 20% at launch, snapshotted at the day's first deposit and frozen. Deposit ETH, TITANX or X28 and receive HORIZON in proportion to your duration-weighted deposit value over everyone's, valued by oracle at deposit time. Every deposit is its own position, claimed the following day.

COMMITMENT	SHARE WEIGHT	OUTCOME
Liquid	Base	Claim HORIZON the next day
Time-lock, up to four years	Rises with lock length	Winnings mint directly into a veHORIZON lock
Burn	The same as a four-year lock	Winnings burn-locked: 2× power, forever

Every deposit splits before it reaches the buyback: a treasury share and a holder share, both in the deposited asset, and the remainder into the buyback step for that asset. X28 deposits also burn a share of the X28 outright. An auction bid is both a purchase of HORIZON and a contribution to the buyback of HORIZON, and it pays veHORIZON holders the same way a loan does. A change to the auction's share or its duration boosts applies from the following day, so a day already open keeps its terms.

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Staking and Governance

Lock HORIZON and earn from the whole protocol: a weekly revenue share, the fees of the vaults you vote for, and incentives from anyone competing for your vote.

LOCKING

Lock HORIZON for one week to four years and receive veHORIZON as a transferable position. Power falls linearly to unlock, when the principal returns. A burn-lock destroys the HORIZON and grants 2× power, forever.

THE VOTE

Each week, veHORIZON holders allocate their power across gauges: the vaults and markets in the voted bucket. An allocation stands, week after week, until you change or reset it. Voting closes for the last hour of each week so the tally that pays fees and incentives is settled, and the emission table is rebuilt from it.

FEES FOLLOW VOTES

The trading fees of a vault, after the performance fee, go to the holders who voted for it that week, pro rata to their vote. You earn the fees you directed emissions toward, whether or not you hold the vault.

VOTE INCENTIVES

Anyone may attach an incentive, in any token, to a gauge for a week. The holders who vote for that gauge claim it pro rata. Protocols seeking liquidity, DAOs and large depositors compete for emissions in the open.

REVENUE SHARE

The holder share of every revenue stream is paid weekly, in the asset it was earned in, according to each holder's power at the start of the week.

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Guardian Pools

Back a market you believe in, and earn three ways for keeping it healthy.

STAKING

Every borrowable market has a Guardian Pool. Stake the market's receipt token, or the asset itself and the pool supplies it in one step. Guardian Pools can earn from three sources: the lending interest the receipt tokens keep earning, HORIZON rewards from the Guardian Pool bucket, and stability bonuses when the pool clears an unhealthy position.

BACKING THE MARKET

When a position in the market becomes unhealthy, anyone can trigger the Guardian Pool to absorb it. The pool repays the debt from its staked capital, takes collateral at the liquidation bonus and sells it, floored at the collateral's oracle value. The caller earns a bounty from the surplus and the rest is shared across stakers as a stability bonus. If a liquidation leaves debt with no collateral behind it, the pool covers that shortfall first, within a limit per event and per week, so one loss never takes the whole pool. Any remainder is shared across the market's suppliers. Borrow caps are sized so that each market's Guardian Pool can back it.

EXIT

Unstaking takes two steps, so a rush for the exit cannot empty the backstop during a liquidation. A request starts a cooldown, five days at launch, during which the stake keeps earning, and then a two-day withdrawal window opens. While a flagged position in the market waits to be cleared, withdrawals pause briefly until it is resolved.

Risk. Guardian Pool stakers absorb liquidation shortfalls first. In a sharp market move, stakers may withdraw less than they deposited.

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Loyalty

Use Horizon, hold HORIZON, and earn more from both.

Points. A time-weighted activity score across every product.

Tiers. Your tier is set by the share of your Horizon portfolio held in HORIZON, averaged over seven days, with locked HORIZON counting at 1.5×. Higher tiers carry a points multiplier and a larger referral cut.

TIER	HORIZON SHARE OF PORTFOLIO	POINTS MULTIPLIER	REFERRAL CUT
Bronze	Any	1.0×	15%
Silver	2%	1.5×	17%
Gold	5%	2.5×	20%
Platinum	12%	4.0×	22%
Diamond	25%	6.0×	25%

Seasons. Seasons run 90 days. Each season, the season bucket of emissions is distributed as a claimable HORIZON airdrop by points, vested over six months.

Referrals. Share your link. A referred wallet earns 10% more on its own points, and you earn your tier's cut of their points, capped at 2× your own.

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Risk Management

Every loan on Horizon is overcollateralised, every market is capped to what can be liquidated, and losses stay in the market where they happen.

COLLATERAL CATEGORIES

CATEGORY	EXAMPLES	POSTURE
Stablecoin	USDC	Highest loan-to-value, smallest bonus, lowest reserve factor
Soft-pegged	USDx	Supply and borrow, with collateral use a timelocked listing setting
Blue chip	ETH, wstETH, WBTC	High, sized to deep liquidation markets
Volatile	Long-tail tokens, listed isolated	Conservative, with a larger bonus and reserve factor
Vault share	Vault shares	Most conservative

CONTAINMENT

Thin assets list as isolated markets with a debt ceiling and live in their own sub-accounts, so a cascade in one isolated market stays inside it. A shortfall on an isolated position is settled across the suppliers of the borrowed asset. A shortfall in the shared markets falls first on the market's Guardian Pool and then on its suppliers.

CAPS AND SETTINGS

Supply and borrow caps start closed, are sized from measured liquidation depth and are bounded by Guardian Pool capacity. Tightening a risk setting protects the pool, so it happens at once; loosening one goes through the 24-hour timelock. A cut to an asset's liquidation threshold, or a rise in its liquidation bonus, is announced on chain 24 hours ahead and moves in steps, so a change to your position's terms is visible a day before it lands.

Every valuation uses the reserve's own feed: Chainlink for the blue chips, and the standard price feed for the rest, built from deep onchain liquidity and checked against a manipulation-resistant reference. When a price is unavailable, borrowing and withdrawals against that asset pause until a healthy price returns.

EMISSIONS

Every minting programme has a ceiling set through the timelock and mints nothing without one. Vault emissions are also capped as an APR over the vault's value.

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Security

Horizon's code is written for this protocol, audited independently, and changed only in public.

CONTRACTS

Horizon's contracts are written for this protocol, in a single codebase, with every mechanism implemented once. Core contracts are upgradeable through the timelock, which can also freeze them permanently.

CHANGES IN PUBLIC

Every upgrade, listing, ceiling and loosening of a limit is scheduled on chain and takes effect 24 hours later, so anyone who disagrees with a change has a day to act before it lands. The protocol's multisig is the only party that can propose, execute or cancel a change. A pause is instant, so an emergency can be contained at once, and lifting a pause is itself a 24-hour change. Day-to-day risk settings move within ceilings the timelock sets: a cap, a fee or a collateral factor can be cut at once, and the allocation shares move within their limits.

FAIL-CLOSED DEFAULTS

Emission ceilings, buyback step sizes, supply and borrow caps and price bounds all start closed. A fresh deployment mints, lends and buys back only once each ceiling is deliberately set through the timelock.

AUDITS

The codebase has been through repeated internal multi-agent security reviews, and an independent external audit by three auditors is under way, working from a frozen copy of the repository and covering the lending pool, the token and revenue contracts, the ve(3,3) system, the auction and the vault system. Findings are published in the protocol's documentation as they close, and mainnet follows the audit with verified contract addresses.

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Ecosystem and Multi-chain

One token, one app and one treasury, with liquidity native on every major chain.

TITANX ECOSYSTEM

Horizon's buyback runs through the TitanX ecosystem by design: revenue buys TITANX, TITANX becomes X28, X28 buys HORIZON. The auction accepts ETH, TITANX and X28. Vaults provide concentrated liquidity for TitanX ecosystem pairs and for HORIZON against WETH, USDx, TITANX and X28.

COMPOSABILITY

hTokens are standard ERC-20s with ERC-4626 wrappers, and vault shares are standard ERC-20s, so other protocols and agents build on both through standard interfaces, with a published lens exposing every vault's state.

MULTI-CHAIN

Ethereum is the hub: locking, voting, the auction and revenue routing live there. Base is the first spoke, with vaults and native HORIZON liquidity. HORIZON bridges natively over Chainlink CCIP as one token on every chain, and the design brings each spoke's fees home to the same revenue split on Ethereum. The endgame is one app, one token, one emissions budget and one treasury, with liquidity native on every major chain.

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Conclusion

Horizon is built around a single commitment: every activity on the platform strengthens the same cycle. Revenue from lending, liquidity, leverage and the auction splits between veHORIZON holders, open-market buybacks and the treasury. Every HORIZON bought back burns part of itself. Emissions go where holders vote, and the fees of what they vote for come back to them.

Horizon unifies one money market, managed concentrated-liquidity vaults, one-transaction leverage, a daily auction and a first-loss backstop into one platform with one revenue split and one token. The mechanics described in this document are the mainnet architecture: the code that launches on Ethereum after its external audit.

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Horizon

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