

# XENOSYSTEMS.

/ˈzɛnəʊ/

PREFIX: XENO-

OTHER; DIFFERENT IN ORIGIN.

# PRIORI

- THIS DECK IS PRIMARILY DESIGNED FOR THE PEDAGOGY THAT FINDS MEMO THE TEAM FORWARDED COMPLEX OR INCOMPREHENSIBLE.
- WE'VE KEPT THE DECK SIMPLE, STRAIGHTFORWARD AND UTILIZED A PROSE THAT DOESN'T GO INTO THE MARGINS.
- WE WERE NOT READY TO MAKE THAT SACRIFICE WITH THE MEMO, WHICH ITSELF WE FEEL TO BE OVER-DILUTED. THE ORIGINAL VERSION OF THE THESIS WAS AROUND 2000 PAGES LONG WHEN WE AUTHORED IT AS AN INVESTMENT MANDATE. IN THE END VERSION OF THE MEMO, WE DILUTED IT TO UNDER 100 PAGES; FURTHER DILUTION SEEMED NOT TO DO JUSTICE TO THE COMPLEXITY OF THE PROBLEM WE'RE TRYING TO ADDRESS.
- WE HAVE ALSO PERFORMED NECESSARY EXTENSION BY ADDING RELEVANT INFORMATION SPECIFICALLY TO THE CRYPTO-NATIVE PEDAGOGY IN THEIR NATIVE SEMIOTICS.
- AS A CONSEQUENCE OF THE DILUTION, AT TIMES THE DECK MIGHT HAVE A LINGUISTIC, SEMIOTIC OR EPISTEMIC VOID; YOU CAN REFER TO THE MEMO IN ANY SUCH SCENARIOS OR WRITE A NOTE AT THE ADDRESSES MENTIONED BELOW
- HAVE FUN READING, POST-READING YOU CAN FORWARD ANY NOTES AT [MEET@XENOSYSTEMS.XYZ](mailto:MEET@XENOSYSTEMS.XYZ), OR [@MEETBARVADIYA](https://t.me/MEETBARVADIYA) ON TELEGRAM

# ONE PAGER / TLDR

- XENOSYSTEMS IS DESIGNING A DISTRIBUTED SYSTEM WITH AN EXPANSIONARY MONETARISM VIA NATIVE LENDER FUNCTION, NATIVE EXCHANGE FUNCTION, AND NATIVE DEALER FUNCTION DENOMINATED IN THE CORE ASSET \$XENO.
- OUR KEY MONETARY CHARACTERISTIC/MONEYNESS FOCUS IS THE UNIT OF ACCOUNT; WE MAKE “ALL” CORE AND EXTERNALLY ALIGNED FUNCTIONS DENOMINATED IN \$XENO.
- OUR AIM IS NOT TO BRING EXISTING MONETIZED ASSETS (TOKENIZATION THESIS; STABLECOINS, TOKENIZED TREASURIES, STOCKS, ETC) ON-CHAIN BUT TO PRODUCE NET NEW MONETIZABLE RISK-FREE AND RISK-ADJUSTED ASSETS WHICH ARE DENOMINATED IN \$XENO FOR OFF-CHAIN BALANCE SHEETS TO MONETISE.
- THESE MONETIZABLE ASSETS (CORE/INTERNAL AND EXTERNAL PAR PRODUCTS) CAPTURE AND DISTRIBUTE THE YIELDS TO VEHICLES WITH PERMANENT, LONG-TERM AND/OR SHORT-TERM MANDATES.
- THE INSTRUMENTS WE PRODUCE ALIGN WITH MOST LIQUID MANDATE STRUCTURES, BE A PUBLIC PENSION FUND OR A SINGLE MANAGER HEDGE FUND.
- FORMALLY, WE AIM TO ADDRESS THE EMERGENT DISCONTENTMENT GENERATED BY MODERN PORTFOLIO THEORY AND CAPITAL ASSET PRICING MODEL FOLLOWED BY MOST FORMAL PORTFOLIOS TODAY, NOTIONALLY REPRESENTING MORE THAN \$100TN VALUE INSIDE THESE ORGANIZED POOLS OF CAPITAL, VEHICLES AND MANDATES.
- TELEOLOGICALLY, OUR THESIS IS A THESIS OF SOVEREIGNTY AND NOT MERELY A PORTFOLIO THEORY, A MONETARY SYSTEM, A SOVEREIGN ASSET OR A DISTRIBUTED SYSTEM.

# ORIGIN

- THE CORE CONTRIBUTORS BEHIND THE THESIS COME FROM AN EXTENSIVE SCHOLARLY BACKGROUND ON POLITICAL THEOLOGY, SOVEREIGNTY, SOVEREIGN SECURITY, SOVEREIGN DEFERRAL, SOVEREIGN RISK, ONTOLOGICAL DEALER FUNCTION AND ITS MATERIAL IMPLICATIONS ON MODERN PORTFOLIOS.
- DURING 2020-2022, THE CONTRIBUTORS PHASE-WISE FORMED A PERMANENT CAPITAL VEHICLE ON THE CORE THESIS OF ARBITRAGING THE REAL VS SYNTHETIC RISK-FREE RATES ACROSS TERRITORIAL AND EXTRATERRITORIAL MARKET FUNCTIONS, LEVERAGING THEIR THEMATIC INSIGHTS ON SOVEREIGNTY, THREE DECADES WORTH OF CLOSE OBSERVATIONS OF PUBLIC PORTFOLIOS VIA COLLABORATIVE POLICY EFFORTS WITH PUBLIC PENSION FUNDS AND SPECULATIONS ON THE INSTITUTION OF SOVEREIGN DEFERRAL AND LAST RESORT IN THE TRADITION OF CENTRAL BANKING POLICY THEORIZED BY BAGEHOT, HAWTREY, SAYERS, AND GOODHART.
- WHILE BEING SATISFIED WITH THEIR SYSTEMATIC FORMATIONS OF INITIAL LEGS OF THE TRADE MODULE, THEY FELT QUITE DISSONANT WHILE FORMING THE EXIT LEG, WHICH SEEMED TO BE SELF-REFERENTIAL, ARCHETYPICALLY, AN OUROBOROS.
- WHILE DOING THEMATIC FORMATION AROUND THE EXIT LEG OF THE STRATEGY FOR THE PERMANENT CAPITAL VEHICLE MANDATE, IT FELT THAT IT WOULD NOT BE (THEOLOGICALLY AND MATERIALLY) NOBLE TO JUST MONETIZE THE CRISIS, WHERE THEY JUST HAD A PRIVILEGED POSITION COMPARED TO THEIR COUNTERPARTS. WHILE THE CRISIS STILL EXISTS LIKE IT ALREADY DID, (ACKNOWLEDGING A POSSIBILITY THAT IF BY GENERATING SYSTEMICALLY IMPORTANT BALANCE SHEET VIA THE TRADE, IT MIGHT BE AN INSTITUTIONAL CRITIQUE) BUT AN ACTIVE PARTICIPATION SEEMED A RIGHT CHOICE, ESPECIALLY WHEN THEY HAVE THE PEDAGOGICAL TOOLS TO DO SO.

- XENOSYSTEMS, AS A THESIS AND, MORE EXTENSIVELY, AS A PROJECT; COMES OUT OF THIS GENEALOGICAL AND EPISTEMIC THESIS ON SOVEREIGNTY, HISTORICAL MOVEMENTS OF THE PAR FUNCTION, SOVEREIGN DEFERRAL, PAR INTERNALISATION AND THE CRISES OF SOVEREIGN SUCCESSION.
- XENOSYSTEMS “INCORPORATED” IS THE CORE CONTRIBUTOR BEHIND RESEARCH, THEORY, IMPLEMENTATIONS AND ADVOCACY FOR THE END STATE OF WHAT WE CALL XENO, THE "SOVEREIGN ASSET", THE "DISTRIBUTED SYSTEM", THE "CHAIN", THE "DISTRIBUTED LEDGER" AND/OR THE "PROTOCOL".

# CRISIS

- MOST PUBLIC FORMAL, ORGANIZED AND STRUCTURED PORTFOLIOS TODAY, ACCOUNTING FOR MORE THAN \$100TN IN NOTIONAL VALUE, FOLLOW MODERN PORTFOLIO THEORY, THEORIZED BY MARKOWITZ AND ITS DERIVATIVE PRICING MODEL, NAMED CAPITAL ASSET PRICING MODEL, THEORIZED BY SHARPE, AS THEIR CORE CANONICAL INVESTMENT MANDATE.
- MODERN PORTFOLIO THEORY AND CAPITAL ASSET PRICING MODEL WERE INDEED MAJOR BREAKTHROUGHS IN 20<sup>TH</sup>-CENTURY FINANCE THEORY, BUT THEY ASSUME AN “ABSOLUTE” RISK-FREE RATE, A DIVINE UNCHALLENGABLE MANDATE.
- ALL THE VALUATION MODELS AND PRICING THEORIES OF ASSETS IN THE PORTFOLIO; BE IT PUBLIC EQUITIES, FIXED INCOME, PRIVATE EQUITIES, PRIVATE CREDIT NOTES, PRIVATE FUND COMMITMENTS OR DERIVATIVE CONTRACTS, ARE BASED ON THE ASSUMPTION OF AN ABSOLUTE RISK-FREE RATE.
- WHILE GENEALOGICALLY, EPISTEMICALLY AND HISTORICALLY THE ASSUMPTION IS INDEED CHALLENGEABLE, ESPECIALLY IN CONTEMPORARY PORTFOLIO TECHNE.
- DURING THE GLOBAL FINANCIAL CRISIS, 2007-2009; THE FEDERAL RESERVE PHENOMENALLY FULFILLED ITS MANDATE AS THE LENDER OF LAST RESORT, DESCRIBED BY BAGEHOT, HAWTREY, SAYERS, AND GOODHART AND IT EVEN EVOLVED TO BE A DEALER OF THE LAST RESORT, WHICH GOT THEORIZED DURING 2008-TILL DATE PERIOD.
- THE CENTRAL BANKING POLICY OF POST-GLOBAL FINANCIAL CRISIS PERIOD WAS BUILT ON THE FOUNDATIONAL ASSUMPTION OF AN “PERPETUAL CRISIS”.



- WHICH LED TO POLICY MAKERS TO DEVELOP PERPETUAL ASSET PURCHASING, MONETISATION AND PAR MAINTENANCE WINDOWS.
- AS A CONSEQUENCE OF THIS FOUNDATIONAL ASSUMPTION OF A PERPETUAL CRISIS AND RELEVANT POLICY FORMATIONS TO ADDRESS THE ASSUMPTION OF A PERPETUAL CRISIS; THE PRIVATE AND PUBLIC PORTFOLIOS FOLLOWING THE MODERN PORTFOLIO THEORY LOST THEIR REAL ASSET PURCHASING POWER.
- ALLOCATORS FOLLOWING MPT AND CAPM, BY CHOOSING THESE GOLDEN HANDCUFFS IN THIS ERA OF SOVEREIGN DEFERRAL, THEIR REAL AND UNCORRELATED ABSOLUTE RETURNS ARE AT HISTORICAL LOWS.
- AS A CONSEQUENCE, THEIR ALLOCATIONS THAT WERE SUPPOSED TO GO UNDER THE UNCORRELATED RETURNS MANDATE, ARE GOING UNDER THE LEVERAGED BETA MANDATE.
- OVERALLOCATION TO LEVERAGED BETA ASSETS FUELS THE CRISIS OF PAR, WHICH ALLOCATORS DEFER THE PAR MANAGEMENT OF THESE ALLOCATIONS TO THE SOVEREIGN, THE ISSUER OF THE UNIVERSAL DENOMINATOR.
- THE SOVEREIGN (FEDERAL RESERVE) IN THE CONTEXT, HAS PROVIDED WELL VERSED EVIDENCES TO SUPPORT THE PRIVATE PORTFOLIOS' DEFERRAL TO THEM.
- NOT TO MENTION, THESE VEHICLES WITH LONG-TERM LIABILITY BOOKS, HAVE FIDUCIARY RESPONSIBILITIES TO THEIR PENSIONERS, TRUST BENEFICIARIES, INSURANCE BENEFICIARIES, ETC.

- NOT TO DISCREDIT ALLOCATION DISCOURSE, THERE'S AN OPENNESS TO ACKNOWLEDGE THE POSSIBLE SOLUTIONS. WE HAVE OBSERVED THAT FIRST HAND.
- GIVEN THE HISTORICAL MOMENT WE'RE IN, IT'S NOT MERELY A CRISIS OF AN ASSET CLASS, A BUCKET OF ASSET CLASSES OR PORTFOLIO THEORY AT LARGE, BUT ITS A CRISIS OF SOVEREIGNTY.
- OFCOURSE, GIVING A SUCCESSION MODALITY TO THE MODERN PORTFOLIO THEORY AND ITS RELEVANT CONSEQUENCES IS THE LOWER-HANGING FRUIT, BUT THE DISCOURSE MUST NOT STOP THERE.
- IT'S A BIGGER CRISIS AND THEREFORE THE DISCOURSE SHOULD RESONATE WITH THE CRISIS OF SOVEREIGNTY ITSELF RATHER THAN A CRISIS OF PORTFOLIO THEORY.
- THE CRISIS OF THE PORTFOLIO THEORY IS A PART OF THE PROBLEM IN LARGER AND MORE COMPLEX CRISIS OF SOVEREIGNTY.
- ANY CAPITAL STRUCTURES EMPLOYED BY XENOSYSTEMS FOR DISTRIBUTION AND ALLOCATION PURPOSES SHOULD ALSO BE DONE IN THE SAME CONTEXT.



# SOLVING THE CRISIS: SUCCESSION

- BEFORE THE SOLUTION, FIRST COMES THE ACKNOWLEDGEMENT; ACKNOWLEDGEMENT THAT IN THE CONTEMPORARY TECHNE, THE SOVEREIGN WILL INTERNALIZE THE PAR AT THE COST OF ITS SUBJECTS, EVEN MIGHT ACT ARBITRARILY FOR DIFFERENT CLASSES OF SUBJECTS HOLDING DIFFERENT INSTRUMENTS AND ASSETS ON THEIR BALANCE SHEETS.
- GENEALOGICALLY, ALL MAJOR MONETARY CRISES HAVE BEEN CRISES OF SUCCESSION AND NOT THE CRISES OF MONETARISM THEMSELVES.
- WE STAND AT A DELICATE MOMENT IN HISTORY, WHERE WE MUST REDEFINE WHAT A MONETARY SOVEREIGN IS, IN ORDER TO DEFINE WHAT THE MODALITIES OF SUCCESSION ARE.
- AS VIA GENEALOGICAL DIALECTICS WE DERIVED IN THE MEMO, SOVEREIGNTY IS A SYSTEM OF SPREADS, SPREAD ON THE PAR, AN OPTION, AN OPTION TO HAVE A PERPETUAL SUCCESSION OF LIQUIDITY; A MODALITY OF PERPETUAL NEGOTIATIONS BETWEEN DIFFERENT CLASSES OF STAKEHOLDERS INSIDE THE COMMON ACCOUNTING STANDARD.
- IF THE FEDERAL RESERVE EMPLOYS AN ASSUMPTION OF THE PERPETUAL CRISIS AS THE FOUNDATION FOR POLICY CHOICES, WE MUST ACKNOWLEDGE ITS CONSEQUENCES, EVEN IF WE HAVE GIANT STACKS IN AT THE TABLE WHICH MIGHT BE AT AN PRIVILEGED POSITION DUE TO THIS ASSUMPTION OR BY VIRTUE OF INDIVIDUAL MANDATES.
- AS PERRY MEHRLING STATS, FEDERAL RESERVE SHOULD ACKNOWLEDGE ITS RESPONSIBILITY AS A GLOBAL IMPERIALIST BANK TO FULLFILL ITS RESPONSIBILITY TOWARDS ITS DIFFERENT CLASSES OF SUBJECTS ON THE SIMILAR ACCOUNTING STANDARD; WHICH, IT HAS FAILED TO DO SO.

- WHAT WE PROPOSE HERE IS A SYSTEM THAT ACKNOWLEDGES ITS RESPONSIBILITY TOWARDS ITS SUBJECTS, MAKE THE RULES OF THE SYSTEM MORE OPEN, DECENTRALIZED, TRANSPARENT AND FAIR IN ORDER TO FULLFILL ITS FUNCTION AS A MONETARY SOVEREIGN, IN THE PERPETUAL MAINTENANCE OF THE PAR, INTEREST, FOREIGN EXCHANGE AND PRICE LEVELS, BY AKNOWLEDGING ITS RESPONSIBILITY AS THE LENDER AND DEALER OF “ALL” RESORTS.
- WE INCORPORATE A DEEP THEOLOGY CONSTITUTING THE SUBJECT, AND THE OBJECT OF POWER, THE SACRED CENTER.
- DUE TO THE FOUNDATIONAL ASSUMPTION OF A “PERPETUAL CRISIS”, THE SOVEREIGN’S ROLE IS NOW NOT MERELY TO FULFIL ITS MANDATE AS THE LENDER AND DEALER OF LAST RESORT BUT THE LENDER AND DEALER OF “ALL” RESORTS.
- IF THAT’S THE SYSTEM WE’RE SUCCEEDING FROM, THE SUCCESSOR MUST TRULY THINK TO FULFIL THIS PURPOSE IN THE MOST SUBLIME MANNER POSSIBLE.
- AS OTHER THEMATIC CONSTRUCTIONS IN CRYPTO TECHNE, OUR THEOLOGY IS NOT “PEER TO PEER” BUT “CENTER TO SUBJECT”, AND FULFILLING THAT ROLE BY EMPLOYING A STRATEGIC DISEQUILIBRIUM ONTO THE SYSTEM OF SPREADS, AS WE DISCUSSED, WHICH CONSTITUTES THE SOVEREIGNTY, RATHER THAN EMPLOYING FANTASIES OF ABSOLUTE EQUILIBRIUM AT ALL TIMES, WHICH IS THE ORIGINAL SIN OF THE ORTHODOX AND EVEN CONTEMPORARY MONETARISM.

# PRICING THE SOVEREIGN SECURITY

- WE SPENT A LARGE PART OF OUR UNHOLY BOURGEOISIE CAREERS PRICING THE SOVEREIGN SECURITY.
- WHEN THE SOVEREIGN INTERNALIZES THE PAR IN PERPETUITY, SOVEREIGN SECURITY BECOMES THE MOST IMPORTANT THING TO PRICE. IN FACT, ONE COULD ARGUE THAT ITS THE ONLY THING TO PRICE.
- TO SIGNIFY THE THOUGHT EXPLAINING CONTEMPORY TECHNE,
- “EVERYTHING WILL BE RISK-FREE AND YOU’LL BE HAPPY, SOVEREIGN SECURITY WILL NOT BE THE LAST BUT THE ONLY LINE OF DEFENCE. “
- THE REAL ECONOMIC EXISTENTIAL RISK ISN’T PERPETUALLY RAISING DEBT CEILINGS OR HYPERINFLATIONARY EVENTS, IT’S THE SLOW DEATH OF MODERN PORTFOLIO THEORY.
- PAR INTERNALIZATION FORCES ALLOCATORS TO OVERALLOCATE INTO LEVERAGED BETA REGIMES, INVENTING A SELF-REFERENTIAL NOUMENON WITHIN THE TERRITORIAL CONTINUUM OF THE UNIVERSAL DENOMINATOR, LEADING TO EVERY MARGINAL UNCORRELATED ALPHA BECOMING EXTREMELY EXPENSIVE (OR IMPOSSIBLE) TO GENERATE.
- IT’S NOT MERELY A TAUTOLOGICAL NOUMENON, BUT A RECURSIVE ONE, EACH RECURSION IS UNJUST TO A CLASS OF MONETARY PARTICIPANTS/SUBJECTS AT THE COST OF PROVIDING MONETARY JUSTICE TO ANOTHER CLASS OF MONETARY PARTICIPANTS/SUBJECTS.

# WHY CRYPTO?

- ALL THEORIES OF SOVEREIGNTY TILL 20<sup>TH</sup> CENTURY WERE SPATIAL THEORIES OF SOVEREIGNTY, A LEGITIMACY OF A SOVEREIGN ORDER BASED ON GEOGRAPHICAL LINES.
- WHILE THERE HAVE BEEN ATTEMPTS TO THEORIZE EXTRATERRITORIAL SOVEREIGNTY, ESPECIALLY IN LIBERTARIAN SCHOOLS OF THOUGHT. BITCOIN WAS TRULY A PHILOSOPHICAL BREAKTHROUGH, WHICH SHOWED THE EVIDENCE FOR THE POSSIBILITIES OF EXTRATERRITORIAL SOVEREIGNTY, THE KANTIAN ABSOLUTE TIME.
- IT'S BEEN ALMOST TWO DECADES SINCE BITCOIN WHITEPAPER WAS PUBLISHED. SINCE THEN, ETHEREUM BROUGHT THE THESIS OF PROGRAMMABILITY AND SOLANA BROUGHT THE THESIS OF HIGH-THROUGHPUT TO THIS KANTIAN VISION.
- ONE OF THE QUESTIONS THAT MIGHT ARISE IS WHY BITCOIN OR ETHEREUM CAN'T FULFIL THIS THEMATIC VISION FOR "SUCCESSION". WE HAVE THOUGHT ABOUT THIS A LOT.
- THE ANSWER IS THAT THE PRICE OF SUCCESSION IS A PRICE OF SPREADS, WHICH MATERIALLY BOILS DOWN TO THE UNIT OF ACCOUNT FUNCTION.
- BITCOIN, ETHEREUM AND MOST CRYPTO-NATIVE MONETARISMS ARE NO EXCEPTIONS TO THE ORIGINAL SIN OF ORTHODOX MONETARISTS.
- BITCOIN, ETHEREUM OR ANY CRYPTO "SYSTEM", WHICH MIGHT NOT EVEN HAVE ANY EXOGENOUS DEPENDENCIES, ARE STILL NOT MONETARY PROJECTS, EVEN THOUGH THEY HAVE SOVEREIGN BLOCKSPACES.

- PEER TO PEER ETHOS IS IN THEIR POLITICAL THEOLOGY, WHICH DOESN'T LET THEM CONSCIOUSLY DEVELOP A MONETARY PROJECT.
- FOR US, WHEN WE SEMIOTICALLY THEORIZE THE “CENTER” AND THE “SUBJECT”, IT'S IMPORTANT TO DEFINE THE FUNCTIONS EACH SERVES IN THE MONETARY PROJECT.
- FOR ORTHODOX CRYPTO-MONETARISM, DUE TO ITS PEER-TO-PEER POLITICAL THEOLOGY AS A FOUNDATIONAL BASIS FOR THE LEGITIMACY, IT'S HARD TO DEVELOP THE MONETARY ORDER OF CENTRALLY UNDERWRITTEN, CLEARED AND ENFORCED FUNCTIONS OF A MONETARY ORDER; INTEREST, PAR, FOREIGN EXCHANGE AND PRICE LEVEL.
- WHILE THESE FUNCTIONS DO EXIST IN ORTHODOX CRYPTO-MONETARISM, IT OUTSOURCES THESE FUNCTIONS TO OTHER “PEERS”, WHICH MAKES IT INEFFICIENT, FRAGMENTED, AND ANARCHIC AND LACKS THE SACRED “CENTER”.
- FOR US THE CHARACTERISTICS OF A “MONEY”/ONTOLOGICAL MONEYNES OF AN OBJECT RANK;
  1. UNIT OF ACCOUNT, TO DENOMINATED DEBTS (SUBJECT'S OBLIGATIONS TO THE CENTER)
  2. MEDIUM OF EXCHANGE, TO CLEAR SHORT AND MEDIUM TERM DEBTS (SUBJECT'S OBLIGATIONS TO THE CENTER)
  3. STORE OF VALUE, TO CLEAR LONG TERM DEBTS (SUBJECT'S OBLIGATIONS TO THE CENTER)
- FOR US A MONETARY ORDER IS A SYSTEM OF TRIBUTARY, WHICH THE SUBJECT PAYS TO THE CENTER.



# CRYPTO NATIVE PHILOSOPHY OF ENSHRINEMENT

- WHILE IN THE CRYPTO TECHNE, WHEN ONE TALKS ABOUT ENSHRINEMENT THEY TALK IN A LIMITED CONTEXT OF INTERNALIZING SYSTEMICALLY IMPORTANT EXTERNAL COMPONENTS TO THE PROTOCOL ITSELF, SO THEIR CAPITAL FLOWS CAN BE UTILISED FOR THE FINANCIAL, OPERATIONAL, SECURITY AND BUSINESS FUNCTIONS OF THE PROTOCOL.
- WHILE ACKNOWLEDGING THAT; OUR PHILOSOPHY OF ENSHRINEMENT IS RATHER THE PHILOSOPHY OF “INTERNALISATION” VIA THE DIALECTICS OF SOVEREIGNTY AND SOVEREIGN INABILITY.
- IN THE END IT’S JUST THE QUESTION OF, AS A MONETARY SOVEREIGN, WOULD YOU LET “SOVEREIGN INABILITY” TO EXIST OR NOT, FOR US, THE ANSWER IS NO.
- IF THE SOVEREIGN FULLY ACKNOWLEDGES ITS RESPONSIBILITY TOWARDS ITS SUBJECTS, MATERIALLY, MAINTAINING THE INTEREST, PAR, FOREIGN EXCHANGE AND PRICE LEVEL FUNCTIONS OF THE MONETARY ORDER, IT MUST INTERNALIZE ITS CORE FUNCTIONS;
  1. INTERNALIZED EXCHANGE FUNCTION
  2. INTERNALIZED ORACLE
  3. INTERNALIZED LENDER FUNCTION
  4. INTERNALIZED DEALER FUNCTION

WE WILL BE EXPANDING MORE ON THIS IN NEXT SLIDES.

- OFCOURSE, TECHNICAL IMPLEMENTATION WISE, ENSHRINEMENT ALSO COMES WITH SECURITY BENEFITS, WHICH A FACTION OF THE CRYPTO NATIVE PEDAGOGY ADVOCATES FOR. IF ALL THE CORE LIQUIDITY FUNCTION OF THE “CENTER” DO NOT HAVE ANY EXTERNAL SECURITY ASSUMPTIONS, BE IT SMART CONTRACTS OR MULTISIGS AND ARE ONLY MUTABLE BY THE VALIDATOR QUORUM, IT’S A WAY SUPERIOR SECURITY FORMATION.



# MONETARY SPECIFICATIONS

## \$XENO:

- \$XENO ACTS AS THE NATIVE MONETARY UNIT OF ACCOUNT FOR THE CHAIN, DISTRIBUTED LEDGER AND/OR THE DISTRIBUTED SYSTEM.
- \$XENO IS THE CANONICAL UNIT OF ACCOUNT FOR THE SYSTEMIC PAR FUNCTION.
- IT IS THE CORE INSTRUMENT FOR THE MONETARY DESIGN.
- IT REPRESENTS THE NATIVE UNIT FOR ACCOUNT FOR FUNCTIONS MENTIONED BELOW;
- IN WHICH, THE BASE PROTOCOL FEES ARE DENOMINATED
- IN WHICH, THE PRIORITY (INCLUDING THE ECONOMIC SCENARIOS OF BLOCKSPACE CONGESTION AND HOTSPOT ACCESS) FEES ARE DENOMINATED
- IN WHICH, ALL PAIRS ON THE INTERNALIZED EXCHANGE FUNCTION ARE DENOMINATED

- IN WHICH, THE LENDABLE AND LIQUIDATABLE PAIRS ON THE INTERNALIZED LENDER FUNCTION ARE DENOMINATED IN
- IN WHICH, THE DEALABLE AND LIQUIDATABLE PAIRS ON THE INTERNALIZED DEALER FUNCTION ARE DENOMINATED IN
- IN WHICH, ANY PAIRS IN INTERNALIZABLE FUNCTION FOR THE FUTURE ROADMAP WILL BE DENOMINATED
- THE BASE STAKING/GOVERNANCE TOKEN FOR DELEGATED PROOF OF STAKE GOVERNANCE OF XENOBFT CONSENSUS
- THE BASE VOTING TOKEN FOR ANY CHANGES OR THE UPGRADATIONS TO THE CORE PROTOCOL

## **\$STXENO:**

- \$STXENO ACTS AS THE NATIVE BONDING OR STAKING UNIT OF ACCOUNT FOR THE CHAIN, DISTRIBUTED LEDGER AND/OR THE DISTRIBUTED SYSTEM.
- IT REPRESENTS,
- THE SPREAD AND PAR OF THE TOTALOGICAL SYSTEM, THE \$STXENO/\$XENO PAIR.
- THE \$XENO DENOMINATED RISK-FREE ASSET
- THE LIQUID REPRESENTATION AND PRINCIPAL FOR THE \$XENO DENOMINATED RISK-FREE YIELDS
- THE CORE TOOL FOR MONETARY POLICY
- THE CORE TOOL FOR MONETARY ELASTICITY CONTROLS AND CONTRACTIONS
- THE SIGNIFYING UNIT OF ACCOUNT FOR YIELDS OR SURPLUSES ACCRUED THROUGH INTERNALIZED EXCHANGE, LENDER AND DEALER FUNCTION

- THE BASE COST TO BORROW ON INTERNALIZED LENDER FUNCTION ATTACHED OF ORIGINATION FEES, SYSTEMIC FEES, AND/OR ANY MISC FEES
- THE LIQUID REPRESENTATIVE TOKEN FOR DELEGATED PROOF OF STAKE GOVERNANCE OF XENOBFT CONSENSUS.
- THE LIQUID REPRESENTATIVE TOKEN FOR VOTING REGARDING ANY CHANGES OR UPGRADATIONS TO THE CORE PROTOCOL.

## INTERNALIZED BONDING/STAKING FUNCTION

- IF ONE DESIRES TO TRULY BUILD A RISK-FREE ASSET REPRESENTING A RISK-FREE RATE OF RETURN, THE SOVEREIGN AND/OR THE MONETARY ISSUER MUST ISSUE THE LIQUID, DEALABLE AND LENDABLE BONDING INSTRUMENT ITSELF RATHER THAN OUTSOURCING THAT FUNCTION TO THE NON-SOVEREIGN PRIVATE SECTOR, WHICH IS WHAT THE MAJOR BLOCKCHAINS CURRENTLY DO. IT SHOULD BE A SOVEREIGN LIABILITY FOR IT TO BE LEVERAGED AND DEALT IN THE LARGER SOVEREIGN AND NON-SOVEREIGN BALANCE SHEETS.
- WHEN \$XENO HOLDERS DELEGATE \$XENO TO A VALIDATOR, THEY RECEIVE NATIVELY MINTED LIQUID REPRESENTATION OF THAT STAKE DELEGATION, \$STXENO.
- DELEGATED PROOF OF STAKE ITSELF IS A PROTOTYPICAL ENSHRINED LIQUID STAKING FUNCTION WITH. WHAT WE'RE ATTEMPTING HERE IS A DERIVATIVE FORM OF DELEGATED PROOF OF STAKE BY MAKING THE STAKE DELEGATION LIQUID, WHICH COMES WITH ITS OWN SET OF PRIVILEGES AND COMPLEXITIES IN THE LARGER SCHEMA OF SYSTEMIC DESIGN CHOICES.
- THE LIQUID REPRESENTATION OF THAT STAKE DELEGATION, \$STXENO CAN BE LEVERAGED IN THE INTERNALIZED LENDER FUNCTION WITH LOWEST POSSIBLE COLLATERAL HAIRCUT, AS IT BEING THE SOVEREIGN LIABILITY.
- THINK OF IT LIKE HOW YOU COULD BORROW AT THE CHEAPEST COST OF CAPITAL, WITH UP TO 99% LTV WHEN YOU PLEDGE A TREASURY SECURITY AS COLLATERAL IN A USD DENOMINATED REPO TRANSACTION.

- WHO ISSUES THE BASE BONDING ASSET BECOMES MORE AND MORE IMPORTANT AS SYSTEMICALLY IMPORTANT TRADES DEVELOP ON TOP OF THAT BONDING ASSET.
- A MOCK WORKFLOW FOR AN EXAMPLE:
  1. A PARTICIPATING ACTOR ACQUIRES \$XENO FROM THE OPEN MARKET.
  2. THEY DELEGATE AND STAKE THAT \$XENO TO A PERMISSIONLESS SET OF VALIDATORS
  3. THEY RECEIVE \$STXENO AS A LIQUID REPRESENTATION OF STAKE DELEGATION
  4. ASSUMING THE CURRENT RISK-FEE RATE TO STAKE \$XENO IS 5%
  5. THEY PLEDGE \$STXENO AS COLLATERAL TO THE INTERNALIZED LENDER FUNCTION
  6. THEY BORROW AT A RISK-FREE RATE + ORIGINATION FEES (TO DISINCENTIVIZE UNPRODUCTIVE ARBITRAGES) AT UPTO 90% LTV.
  7. THE LTV IS SET BY THE DECENTRALISED VALIDATOR GOVERNANCE AND SUPERMAJORITY QUORUM
  8. NOW THEY COULD BUILD FOLLOW-ON LEGS ON THIS STRATEGY TO DEVELOP A SYSTEMATIC TRADE.
- \$STXENO IS NOT MERELY FOR NETWORK SECURITY BUT A CORE INSTRUMENT FOR MONETARY DESIGN; IT REPRESENTS A RISK-FREE RATE BUT ALSO A CEILING FOR MONETARY EXPANSION. ENDOGENOUS CREDIT CREATION IN \$XENO CAN ONLY BE EQUAL OR LESS THAN THE TOTAL STAKED \$XENO, WHICH \$STXENO REPRESENTS.

## INTERNALIZED/ENSHRINED EXCHANGE FUNCTION

- AN INTERNALIZED EXCHANGE FUNCTION LETS THE SOVEREIGN DECIDE “EXCHANGE STANDARD”, IN WHICH, THE ONTOLOGICAL “XENO”, THE OTHER, IS DENOMINATED IN.
- IT’S IMPORTANT TO MAKE SURE THAT THERE’S A SINGULAR UNIFIED STANDARD FOR DIFFERENT CLASSES OF MONETARY PARTICIPANTS.
- EVERY PAIR ON THE INTERNALIZED EXCHANGE FUNCTION IS DENOMINATED IN THE BASE MONETARY UNIT OF ACCOUNT \$XENO,
- ANY “OTHERNESS” WHICH IS A NON-“PAR” ASSET, DENOMINATED IN THE BASE MONETARY UNIT OF ACCOUNT \$XENO CAN ECONOMICALLY SUSTAIN ITSELF AS LONG AS IT EXPRESSES THE VOLATILITY TO THE BASE MONETARY UNIT OF ACCOUNT \$XENO.
- WHAT WE AIM TO ACHIEVE VIA THE INTERNALIZED EXCHANGE FUNCTION IS TO CAPTURE THE GLOBAL VOLATILITY DENOMINATED IN \$XENO, WHICH THE INTERNALIZED DEALER FUNCTION, THE INTERNALIZED LENDER FUNCTION AND NON-SOVEREIGN PAR PRODUCTS CAN CAPTURE, STRUCTURE, MONETIZE AND DISTRIBUTE IN THE FORM OF \$XENO DENOMINATED RISK-FREE AND RISK-ADJUSTED YIELDS.



- EVEN THOUGH THE THROUGHPUT OF THE UNDERLYING DISTRIBUTED ARCHITECTURE IS LESS RELEVANT, TO THE POINT OF CURRENT HIGH THROUGHPUT STATUS QUO, IF THE PRIMARY PRICE DISCOVERY HAPPENS ON THE INTERNALIZED EXCHANGE FUNCTION IN TOTALITY, AND THE PRICE SIGNALS DERIVED ON THE INTERNALIZED EXCHANGE FUNCTION DOESN'T HAVE ANY DEPENDENCIES ON ANY OFF THE LEDGER OR OFF-CHAIN PRICE SIGNALS, ORACLES, PACKETS, OR JITTERS.
- VIA INTERNALIZING THE ORACLE FROM THE PRICE SIGNALS DERIVED ON THE INTERNALIZED EXCHANGE FUNCTION, AND INTEGRATING THAT ORACLE FUNCTION TO THE INTERNALIZED LENDER AND DEALER FUNCTIONS, WE INCENTIVIZE THE CAPITAL MARKETS HEAVILY TO KEEP THEIR PRIMARY PRICE DISCOVERY ON THE INTERNALIZED EXCHANGE FUNCTION ITSELF AS THE PRIMARY RISK AND INTEREST PREMIUM FORMULAS ON THE INTERNALIZED LENDER AND DEALER FUNCTIONS WILL BE DERIVED FROM THE PRICE SIGNALS EXPRESSED BY THE INTERNALIZED ORACLE.
- SO IT REWARDS VOLATILITY AND PAR ASSET PRODUCERS HEAVILY TO DEVELOP NETWORK EFFECTS, BY KEEPING THEIR PRIMARY PRICE DISCOVERY INSIDE THE INTERNALIZED EXCHANGE FUNCTION, IT DE FACTO INTEGRATES THEM TO THE BROADER MONETARY FUNCTIONS OF THE XENOSYSTEMS USED FOR DEALING AND LENDING. IT LETS THEM CAPTURE, STRUCTURE AND MONETIZE THE VOLATILITY AND LEVERAGE IN A BETTER WAY.
- STILL, IT'S A JOB OF ANY EXCHANGE SYSTEM ARCHITECTURE TO WORK TO THE BEST OF ITS ABILITY WITHIN THE LARGER DISTRIBUTED SYSTEMS TRADEOFFS; SO A HIGH THROUGHPUT CLOB ARCHITECTURE, WHERE PRICE DISCOVERY OF THE VOLATILITY AND PAR PRODUCTS CAN HAPPEN IN THE MOST EFFICIENT MANNER WITHOUT ANY SYSTEMIC INFORMATION ASYMMETRY, IS NOT JUST A MERE DESIGN CHOICE BUT A STRUCTURAL NECESSITY, I WILL BE COVERING MORE ABOUT THIS IN TECHNICAL SPECIFICATIONS PARTS.

## INTERNALIZED/ENSHRINED ORACLE

- THE PRICE SIGNALS DERIVED FROM THE INTERNALIZED EXCHANGE FUNCTION CAN BE FORMALIZED AND ULITIZED AS THE PRIMARY SOURCE OF PRICE FEED FOR THE INTERNALIZED LENDER FUNCTION, THE INTERNALIZED DEALER FUNCTION AND THE NON-SOVEREIGN PRIVATE PROTOCOLS.
- AS ALL THE PROTOCOLS AND MODULES ARE GOVERNED BY THE VALIDATOR QUORUM, THEY LEVERAGE THE BASE PROTOCOL LEVEL SECURITY GUARANTEES BY VIRTUE OF DECENTRALIZED PERMISSIONLESS EXECUTION, GOVERNED BY A DECENTRALIZED SET OF PERMISSIONLESS VALIDATORS.
- THIS MAKES ATTACKS LIKE ORACLE MANIPULATIONS, KEY COMPROMISES, ETC, IMPOSSIBLE COMPARED TO OTHER ARCHITECTURAL COUNTERPARTS GOVERNED BY MULTISIG ARCHITECTURE.
- OTHER PRIVATE PAR PRODUCTS BUILT ON TOP OF CAN LEVERAGE THE PRICE FEEDS TO KEEP A CONSTANT TRACK OF THEIR KEY FUNCTIONS, I.E. LIQUIDATIONS, SWAPS, ETC

## INTERNALIZED/ENSHRINED LENDER FUNCTION

- INTERNALIZED LENDER FUNCTION IS AN ENDOGENOUS CREDIT ISSUANCE/MONETARY EXPANSION PROTOCOL.
- IT ISSUES \$XENO-DENOMINATED CREDIT AGAINST, INITIALLY, ANY COLLATERAL WHITELISTED (WITH MONETARY EXPANSION SPECIFICATIONS, E.G \$STXENO) INTO THE CORE PROTOCOL BY THE SUPERMAJORITY VALIDATOR QUORUM.
- NET DEBT ISSUANCE IS BOUNDED BY THE TOTAL AMOUNT OF \$XENO STAKED AS WELL AS A HARD-CODED EXPANSION CEILING VOTED BY THE SUPERMAJORITY VALIDATOR QUORUM.
- ONCE THERE'S ENOUGH LIQUIDITY, VOLATILITY AND ASSET ISSUANCE ON TOP OF INTERNALIZED EXCHANGE FUNCTION ABOVE A THRESHOLD, THE NETWORK COULD ADOPT A META-FRAMEWORK WHERE THE SUPERMAJORITY VALIDATOR QUORUM DOES NOT INDEPENDENTLY SET THE MONETARY EXPANSION SPECIFICATIONS (LTVs, RISK PREMIUMS, ETC), BUT SETS THE RULES OF THE EQUATION FOR THESE SPECIFICATIONS.
- AS THE INTERNALIZED EXCHANGE FUNCTION EXPRESSES ALL THE PRICE SIGNALS REQUIRED TO CALCULATE THE LTVs, RISK PREMIUMS, ETC. THE SUPERMAJORITY VALIDATOR QUORUM DOES NOT INDEPENDENTLY NEED TO CALCULATE THESE SIGNALS VIA THEIR PROPRIETARY FRAMEWORKS.
- THE META FRAMEWORK MAKES CREDIT ISSUANCE/MONETARY EXPANSION EVEN MORE DECENTRALIZED AND PERMISSIONLESS.

- AS THE PRICE DISCOVERY ITSELF IS DECENTRALIZED, THE LONG-TAIL MANIPULATION RISK OF THE PRICE DISCOVERY IS IMPOSSIBLE BECAUSE OF THE NATIVE INTERNALIZATION/ENSHRINEMENT OF THE EXCHANGE FUNCTION INTO THE CORE PROTOCOL ITSELF.
- THE META-FRAMEWORK MAKES ANY ASSET ABOVE A CERTAIN VOLUME ON THE INTERNALIZED EXCHANGE FUNCTION ELIGIBLE TO PLEDGE ITSELF AS COLLATERAL FOR \$XENO-DENOMINATED DEBT POSITIONS.
- THE SAME MOCK WORKFLOW AS MENTIONED IN THE INTERNALIZED BONDING FUNCTION COULD BE INTERPRETED HERE, BUT FOR ANY ASSET ISSUED ON THE INTERNALIZED EXCHANGE FUNCTION WITH ADJUSTED LTV AND RISK PREMIUM.
- EACH AND EVERY FUNCTION IN THE INTERNALIZED LENDER FUNCTION IS DENOMINATED IN \$XENO; CREDIT ISSUANCE, CREDIT CLEARING, INTEREST RATES, AND LIQUIDATION OF THE COLLATERAL.

## INTERNALIZED/ENSHRINED DEALER FUNCTION

- INTERNALIZED DEALER FUNCTION IS A DEALER PROTOCOL BUILT ON TOP OF THE INTERNALIZED EXCHANGE FUNCTION; DEALING WITH, INITIALLY, WHITELISTED ASSETS AND, ONCE BOOTSTRAPPED, TO ANY ASSET PERMISSIONLESSLY DEPLOYED ON THE INTERNALIZED EXCHANGE FUNCTION.
- THE DEALER FUNCTION HOLDS A \$XENO-DENOMINATED BALANCE SHEET. WHICH WILL INITIALLY BE ALLOCATED VIA THE FOUNDATION BUDGET AND/OR THE CORE PROTOCOL VIA VALIDATOR QUORUM. AS OUR FUTURE ROADMAP INCLUDES VALIDATOR/STAKER INDEPENDENT ECONOMICS (VIE), THE ALLOCATION TO THE INTERNALIZED DEALER FUNCTION CAN BE DYNAMICALLY ADJUSTED BASED ON COST OF CAPITAL, IT ALLOCATES TO DIFFERENT DEALER MARKETS WITHIN THE INTERNALIZED EXPANSIONARY MONETARY FUNCTION MORE EFFICIENTLY AND PERMISSIONLESSLY.
- ONCE MATURED, THE DEALER FUNCTION WILL BE DEALING IN ALL CONTRACT STRUCTURES DEPLOYED ON THE INTERNALIZED EXCHANGE FUNCTION; SPOT, PERPS, DATED FUTURES, OPTIONS, ETC.
- EVEN THOUGH WE USE CUTTING-EDGE MARKET MICROSTRUCTURE INFRA TO RUN THE DEALER FUNCTION ON MATERIAL GROUNDS, WE UTILIZE JACK TREYNOR'S THE ECONOMICS OF THE DEALER FUNCTION AS A FOUNDATION FOR THE ECONOMIC DESIGN.

# TECHNICAL SPECIFICATIONS

- TPS IS A FUNDAMENTALLY FLAWED METRIC FOR DISTRIBUTED SYSTEMS AS BASELINE RESULTS IGNORE CONTINGENCY LEVELS OF ACCOUNTS, OBJECTS OR FUNCTIONS IN THE SIMULATION AND EVEN IN REAL SCENARIOS.
- A TPS BENCHMARKING FOR NON-CONTAGIOUS R/W INSTRUCTIONS WOULD BE COMPLETELY DIFFERENT FROM HYPER-CONTAGIOUS R/W INSTRUCTIONS.
- THEREFORE, WE RATHER OPTIMIZE FOR THOROUGH CENSORSHIP RESISTANCE PROPERTIES, HIGH THROUGHPUT VIA PARALLELIZED EXECUTION, SHORTER BLOCK TIMES, FASTER FINALITY, MAXIMUM LIVELINESS AND ROBUST PRIORITY FEE MARKETS.
- BEFORE MAKING THE CORE DESIGN CHOICES, WE INTERNALLY RAN SIMULATIONS FOR MOST CUTTING-EDGE LINEAR AND DAG-BASED CONSENSUS ALGORITHMS AND EXECUTION ENVIRONMENTS IN A GLOBALLY DISTRIBUTED SETTING WHILE KEEPING THE CORE ETHOS OF FAIRNESS AND CENSORSHIP RESISTANCE IN MIND. WE RAN A SPECTRUM OF HOTSPOT FORMATION DURING THE PARALLELIZATION OF ROUNDS UP TO THE MAXIMUM UPPER BOUNDS OF STATE CONTENTION, AND ALL THE CORE DESIGN CHOICES ARE BASED ON THOSE RESULTS
- SAME AS MONETARY SPECIFICATIONS, ANY DESIGN CHOICE MADE HERE IS CHANGEABLE AND/OR UPGRADABLE AS PROTOCOL NATIVE RESEARCH AND DEVELOPMENT EFFORTS FIND NATIVE BREAKTHROUGHS.
- WE BORROW THE ETHOS OF CENSORSHIP RESISTANCE FROM ETHEREUM AND HIGH THROUGHPUT ON A SINGLE CONSISTENT STATE MACHINE FROM SOLANA.



## **CENSORSHIP RESISTANCE:**

- THE DISTRIBUTED SYSTEM IS DESIGNED WITH CENSORSHIP RESISTANCE AS ITS FOUNDATION.
- CENSORSHIP RESISTANCE LETS DECENTRALIZED PRICE DISCOVERY HAPPEN ON THE INTERNALIZED EXCHANGE FUNCTION, WHICH IS THE CORE FOUNDATION FOR THE SYSTEMIC PRICE SIGNAL.
- IT MAKES LONG-TAIL SECURITY ATTACKS OF PRICE SIGNAL MANIPULATION IMPOSSIBLE AND MAKES PRICE DISCOVERY MORE ROBUST.
- ALL THE INTERNALISED AND EXTERNAL NON-SOVEREIGN FUNCTIONS FOLLOW PRICE SIGNALS EXPRESSED BY THE INTERNALIZED EXCHANGE FUNCTION, VIA A FORMALIZED PRICE FEED, THE INTERNALIZED ORACLE, SO CENSORSHIP RESISTANCE HAS SYSTEMIC IMPLICATIONS.
- THEREFORE, CENSORSHIP RESISTANCE IS NOT MERELY A DESIGN CHOICE FOR A DISTRIBUTED SYSTEM BUT AN INSTRUMENT OF SOVEREIGN SECURITY.
- WE ADOPT A LEADERLESS CONSENSUS MENCHANISM TO INTEGRATE THE CENSORSHIP RESISTANCE PROPERTIES ON THE DISTRIBUTED SYSTEM



## HIGH THROUGHPUT:

- MOST DEBATES, DISCOURSES AND DIALECTICS IN DISTRIBUTED SYSTEMS DESIGNED FOR HIGH THROUGHPUT INSIDE CURRENT CRYPTO-TECHNE ARE CENTRED AROUND BUILDING THE “DECENTRALIZED NASDAQ”.
- WE BELIEVE HIGH THROUGHPUT IS NOT A CONSENSUS OR EXECUTION PROBLEM BUT AN INHERENT NETWORKING PROBLEM FOR CRYPTO.
- NOT TO MARGINALIZE, IT’S INDEED A CONSENSUS PROBLEM IN THE SENSE THAT “HOW MANY HOPS TO FINALIZE THE BLOCK” AND AN EXECUTION PROBLEM IN THE SENSE THAT “HOW MANY MAXIMUM COMPUTE UNITS YOU CAN UTILISE FOR STATE RESOLUTION”, BUT AFTER A POINT, UNLESS YOU MAKE SERIOUS TRADEOFFS IN GLOBAL DISTRIBUTION AND BARE-MATEL NETWORK ARCHITECTURE, YOU CAN’T DO WHAT NASDAQ DOES, NOT EVEN A FRACTION OF THAT.
- WHEN IT COMES TO CRYPTO, VALIDATOR ECONOMICS ALSO INCREASES A LAYER OF COMPLEXITY TO JUST MAX OUT BARE-METAL NETWORKING AND EXECUTION SPECIFICATIONS, EVEN IF THE NETWORK COULD.
- THAT’S HOW DISTRIBUTED SYSTEMS ARE, AS LONG AS THE PRIMARY PRICE DISCOVERY OF THE MONETIZABLE ASSET HAPPENS AT A PLACE OFF-CHAIN OR WHERE EXTERNAL TRUST ASSUMPTIONS ARE INVOLVED, BE IT NASDAQ OR SOME OTHER VENUE; THE ON-CHAIN EXCHANGE FUNCTION OF THE SAME MONETIZABLE ASSET WILL ALWAYS BE INEFFICIENT AT PRICING THE ASSET WITHOUT INVOLVING EXTERNAL TRUST ASSUMPTIONS (I.E ORACLES WITH EXTERNAL PRICE SIGNALS).

- AS A COMPARATIVE LOGIC, NASDAQ HANDLES 2M+ INSTRUCTIONS PER 100MS WITH MICROSECOND LATENCY BY VIRTUE OF HYPER-LOCALITY AND ORDER BOOKS STORED INSIDE THE HOST-STATE.
- DUE TO THESE OBVIOUS DISTRIBUTED SYSTEMS TRADEOFFS, CURRENT CRYPTO TECHNE HAS EVOLVED TO PROPOSALS OF MICROSTRUCTURAL ASYMMETRIES AS SOLUTIONS; PRIORITIZING CANCELS, MULTI-LEADER EXECUTION, ETC.
- WHILE BEING A WORTHY DISCOURSE, IT DOESN'T CAPTURE THE COMPLEX NEGATIVE EMERGENCE AS A CONSEQUENCE TO THESE DESIGN CHOICES.
- FOR EXAMPLE, PRIORITIZING CANCELS IN A DISTRIBUTED AND OPEN SOURCE SETTING; IF A VALIDATOR WANTS TO INCLUDE PLACE\_ORDER () TRANSACTIONS OVER CANCEL\_ORDER(), THEY WILL CENSOR "ALL" CANCEL\_ORDER () TRANSACTIONS, INCENTIVIZING VALIDATORS TO DELAY CANCELS OVER FILLS IS THE OPPOSITE OF THE INTENDED OUTCOME.
- ALSO THERE IS NO EVIDENCE THAT MULTI-LEADER EXECUTION DECREASES END-TO-END LATENCY, MULTIPLE LEADERS REDUCE THE TIME IT TAKES FOR A SINGLE LEADER TO INCLUDE A TRANSACTION, BUT MULTIPLE LEADERS INCREASE THE TIME IT TAKES TO KNOW WHETHER AN ORDER MATCHES BECAUSE "N" LEADERS NEED TO COORDINATE AND SEQUENCE THE TRADE BEFORE A TRADER KNOWS WHETHER THEIR ORDER MATCHED,

- ON THE OTHER HAND, MULTI-LEADER ARCHITECTURES ARE BETTER DESIGNED TO SOLVE A PROPOSER MONOPOLY.
- FOR US, WHAT WE WANT IS SHORTER BLOCK TIMES AND FASTER FINALITY WHEN WE TALK ABOUT HIGH THROUGHPUT, WHILE NOT MAKING ANY TRADEOFFS IN CENSORSHIP RESISTANCE, GLOBAL DISTRIBUTION AND FAIRNESS PROPERTIES.

## **XENOBFT AND XVM:**

- XVM SERVES AS THE HOLISTIC RUNTIME EXECUTION ENVIRONMENT ORCHESTRATING DATA DISSEMINATION, CONSENSUS, ORDERING, AND TOTAL ORDER MAINTENANCE OF THE DISTRIBUTED SYSTEM.
- IT TIGHTLY COUPLES THE MEMPOOL, CONSENSUS, AND EXECUTION LAYERS, ALLOWING THEM TO OPERATE ON A SHARED, STRUCTURED DAG. THIS INTEGRATION ELIMINATES SERIALIZATION BOTTLENECKS AND ENABLES STATE CHANGES TO BE PROPOSED THE MOMENT DATA AVAILABILITY IS ACHIEVED, RATHER THAN WAITING FOR A SEPARATE CONSENSUS OUTCOME.
- XENOBFT OPERATES AS THE CORE CONSENSUS LAYER, BUILT UPON DAG-BASED PRINCIPLES FOR OPTIMAL BYZANTINE FAULT TOLERANCE.
- OUR BFT CONSENSUS IS NOT A SEPARATE MODULE BOLTED ONTO THE DAG; IT IS A DETERMINISTIC STATE MACHINE THAT INTERPRETS THE EVOLVING TOPOLOGY OF THE DAG ITSELF. BY READING THE PATTERNS OF BLOCK REFERENCES ACROSS ROUNDS, IT REACHES AGREEMENT ON THE TOTAL ORDER OF TRANSACTIONS WITHOUT REQUIRING A SEPARATE VOTING PHASE, INHERITING THE DAG'S INNATE SCALABILITY AND CENSORSHIP RESISTANCE.
- THE ARCHITECTURE LEVERAGES NARWHAL'S FOUNDATIONAL FRAMEWORK FOR EFFICIENT, SCALABLE DATA DISSEMINATION ACROSS THE NETWORK.

- WE UTILIZE NARWHAL'S PROVEN DATA DISSEMINATION FRAMEWORK, WHICH SEPARATES DATA AVAILABILITY FROM CONSENSUS. HOWEVER, WE EXTEND IT BY OPERATING ON AN UNCERTIFIED DAG OF BLOCKS. THIS MEANS WE GAIN NARWHAL'S GUARANTEED DATA PROPAGATION AND RECOVERY MECHANISMS WITHOUT PAYING THE LATENCY TAX OF ITS EXPLICIT CERTIFICATION PROTOCOL.
- BULLSHARK'S PROVEN CONSENSUS AND ORDERING MECHANISMS FORM THE FOUNDATION OF XVM'S TRANSACTION FINALIZATION PROCESS.
- WE ADOPT BULLSHARK'S ELEGANT CONCEPT OF INTERPRETING A STRUCTURED DAG FOR CONSENSUS.
- OUR KEY ADVANCEMENT IS IN MODIFYING ITS COMMIT RULE TO FUNCTION WITHOUT THE PREREQUISITE OF CERTIFIED BLOCKS. THIS ALLOWS US TO BYPASS THE "WAVE" STRUCTURE, COMMITTING BLOCKS EVERY ROUND INSTEAD OF EVERY OTHER ROUND, WHICH DIRECTLY HALVES THE LATENCY IN THE STEADY STATE.
- XVM IS SPECIFICALLY OPTIMIZED FOR DISTRIBUTED SYSTEM EXECUTION, WITH NATIVE SUPPORT FOR SHARDED EXECUTION ENVIRONMENTS.
- THE RUNTIME IS DESIGNED WITH A SHARED-NOTHING ARCHITECTURE FOR ITS CORE COMPONENTS, ALLOWING PARALLEL EXECUTION OF NON-CONFLICTING TRANSACTIONS ACROSS MULTIPLE SHARDS. THE STATE IS PARTITIONED LOGICALLY, AND XVM MANAGES CROSS-SHARD COMMUNICATION ATOMICALLY, ENSURING CONSISTENCY WITHOUT A SINGLE BOTTLENECK.

- WE INCORPORATE MYSTICETI'S FORMALIZATION APPROACHES WHILE SIGNIFICANTLY ENHANCING THEM FOR BARE-METAL PERFORMANCE.
- WHILE WE BUILD UPON THE THEORETICAL GROUNDWORK OF MYSTICETI'S UNCERTIFIED DAG AND ITS SAFETY PROOFS, OUR OPTIMIZATIONS ARE FOR A LOWER-LEVEL STACK. WE BYPASS HIGH-LEVEL OS SCHEDULERS AND RUNTIME ENVIRONMENTS, ALLOWING THE CONSENSUS LOGIC TO RUN ON DEDICATED, BARE-METAL CORES WITH DIRECT HARDWARE ACCESS FOR NETWORKING AND STORAGE.
- THE SYSTEM EMPLOYS A THRESHOLD LOGICAL CLOCK DAG STRUCTURE THAT ELIMINATES EXPLICIT CERTIFICATION OVERHEAD.
- THIS STRUCTURE MANDATES THAT EACH NEW BLOCK MUST REFERENCE A QUORUM ( $2F+1$ ) OF BLOCKS FROM THE PREVIOUS ROUND. THIS CREATES A TEMPORALLY ORDERED GRAPH WHERE THE "SUPPORT" FOR PAST BLOCKS CAN BE MEASURED BY ANALYZING THE REFERENCES IN SUBSEQUENT ROUNDS, FORMING THE BASIS FOR OUR IMPLICIT CERTIFICATION.
- XVM IMPLEMENTS A NOVEL COMMIT RULE ENABLING EVERY BLOCK TO COMMIT INDEPENDENTLY WITHIN 3 MESSAGE ROUNDS.



- THIS RULE ALLOWS ANY BLOCK TO BE COMMITTED AS SOON AS A VALIDATOR OBSERVES A "CERTIFICATE PATTERN" FOR IT, THAT IS,  $2F+1$  BLOCKS IN A DECISION ROUND THAT IMPLICITLY VOTE FOR IT. THIS HAPPENS WITHIN 3 NETWORK DELAYS: THE BLOCK'S PROPOSAL, THE SUPPORTING VOTES, AND THE CERTIFYING BLOCKS THAT ACKNOWLEDGE THE SUPPORT.
- OUR ARCHITECTURE SUPPORTS MULTIPLE PROPOSER SLOTS PER ROUND, DRAMATICALLY INCREASING COMMITMENT THROUGHPUT.
- UNLIKE SINGLE-LEADER-PER-ROUND PROTOCOLS, WE INSTANTIATE MULTIPLE SLOTS (E.G.,  $N$  OR  $2F+1$ ), EACH WITH A DEDICATED VALIDATOR. THIS ALLOWS MULTIPLE BLOCKS TO BE PROPOSED AND COMMITTED CONCURRENTLY IN THE SAME ROUND, MAXIMIZING THROUGHPUT AND ENSURING THE SYSTEM'S TAIL LATENCY CLOSELY TRACKS THE OPTIMAL 3-STEP COMMIT LATENCY.
- THE EXECUTION ENVIRONMENT FEATURES A PIPELINED BLOCK PROPOSAL SYSTEM THAT OPERATES CONTINUOUSLY WITHOUT WAVE-BASED DELAYS.
- VALIDATORS CONTINUOUSLY PROPOSE BLOCKS IN EVERY ROUND WITHOUT WAITING FOR A "LEADER" SIGNAL OR A WAVE TO COMPLETE. THIS CREATES A CONTINUOUS PIPELINE OF BLOCK PRODUCTION, ENSURING NETWORK BANDWIDTH AND VALIDATOR CPU ARE CONSTANTLY SATURATED WITH USEFUL WORK, ELIMINATING THE PERIODIC STUTTER FOUND IN WAVE-BASED PROTOCOLS.



- WE'VE ENGINEERED XVM FOR NATIVE EXECUTION ON BARE-METAL CORES, BYPASSING TRADITIONAL VIRTUALIZATION OVERHEAD, THIS INVOLVES WRITING CRITICAL PATH CODE IN A MEMORY-SAFE SUBSET OF RUST OR C++ THAT AVOIDS KERNEL-LEVEL SYSCALLS FOR I/O OPERATIONS, USING POLLING AND USERSPACE NETWORKING DRIVERS (LIKE DPDK) TO ACHIEVE PREDICTABLE, MICROSECOND-LEVEL LATENCY AND BYPASS OS SCHEDULER JITTER.
- THE NETWORK STACK IS CUSTOM-OPTIMIZED FOR LOW-LATENCY PACKET PROCESSING AND EFFICIENT BANDWIDTH UTILIZATION.
- WE USE A PROTOCOL OF COMPACT, BINARY-ENCODED MESSAGES OVER PERSISTENT TCP CONNECTIONS. THE STACK EMPLOYS VECTORED I/O (WRITEV/READV) TO BATCH MULTIPLE SMALL MESSAGES INTO SINGLE SYSCALLS, MINIMIZING CONTEXT SWITCHES AND MAXIMIZING NETWORK CARD EFFICIENCY FOR SMALL, HIGH-FREQUENCY CONSENSUS MESSAGES.
- TOKEN STANDARDS ARE NATIVELY INTEGRATED INTO THE CONSENSUS LAYER, ELIMINATING ABSTRACTION PENALTIES.
- XENOBFT IMPLEMENTS IMPLICIT CERTIFICATION THROUGH DAG PATTERN RECOGNITION RATHER THAN EXPLICIT SIGNATURE COLLECTION.

- RATHER THAN COLLECTING AND AGGREGATING  $2f+1$  SIGNATURES INTO A CERTIFICATE, A BLOCK IS DEEMED CERTIFIED WHEN A VALIDATOR OBSERVES THAT  $2f+1$  BLOCKS IN THE SUBSEQUENT ROUND INCLUDE IT IN THEIR CAUSAL HISTORY ACCORDING TO A DEPTH-FIRST SEARCH SUPPORT RULE. THIS REPLACES CRYPTOGRAPHIC VERIFICATION WITH A GRAPH TOPOLOGY CHECK.
- OUR CPU UTILIZATION IS OPTIMIZED THROUGH SINGLE SIGNATURE GENERATION/VERIFICATION PER BLOCK VERSUS PER CERTIFICATE.
- IN CERTIFIED DAGs, CPU IS DOMINATED BY VERIFYING  $O(n^2)$  SIGNATURES PER ROUND. WE REDUCE THIS TO  $O(n)$  BY HAVING EACH VALIDATOR PRODUCE ONLY ONE SIGNATURE PER ROUND (FOR THEIR OWN BLOCK). THE IMPLICIT CERTIFICATION REQUIRES NO SIGNATURE VERIFICATION, FREEING THE CPU FOR TRANSACTION EXECUTION.
- THE SYSTEM MAINTAINS SUB-SECOND LATENCY EVEN UNDER CRASH FAILURES THROUGH RAPID SKIP PATTERN DETECTION. THIS IS ACHIEVED THROUGH THE RAPID DETECTION OF "SKIP PATTERNS." IF A VALIDATOR CRASHES AND FAILS TO PROPOSE A BLOCK, THE PROTOCOL QUICKLY IDENTIFIES  $2f+1$  SUBSEQUENT BLOCKS THAT DO NOT SUPPORT IT, FORMALLY MARKING THAT SLOT AS "SKIPPED" AND ALLOWING THE COMMIT SEQUENCE TO ADVANCE WITHOUT WAITING FOR TIMEOUTS.

- WE ACHIEVE OPTIMAL STEADY-STATE PERFORMANCE OF 3 MESSAGE ROUNDS, MATCHING THEORETICAL LOWER BOUNDS
- THE 3-MESSAGE-DELAY LOWER BOUND IS ACHIEVED BECAUSE A BLOCK CAN BE COMMITTED AS SOON AS BLOCKS IN THE "DECISION ROUND" ( $R+2$ ) ARE PROCESSED. THESE BLOCKS PROVIDE A FULL ROUND OF VOTING (FROM ROUND  $R+1$ ) AND THEIR OWN EXISTENCE CONFIRMS THAT THE VOTES WERE SEEN, FORMING A TIGHT COMMIT PIPELINE
- XVM INCORPORATES VECTORED I/O OPERATIONS AND MEMORY-MAPPED FILE HANDLING FOR MAXIMUM THROUGHPUT
- FOR THE WRITE-AHEAD LOG (WAL), WE BATCH MULTIPLE BLOCK WRITES INTO A SINGLE VECTORED WRITE SYSCALL. THIS ENSURES THAT EVEN DURING HIGH THROUGHPUT, THE LOG WRITES ARE SEQUENTIAL AND MINIMAL SYSCALLS ARE MADE, PREVENTING THE I/O SUBSYSTEM FROM BECOMING A BOTTLENECK
- THE PROTOCOL DYNAMICALLY ADJUSTS PROPOSER SLOTS BASED ON NETWORK CONDITIONS AND VALIDATOR PERFORMANCE
- BASED ON CONTINUOUS MONITORING OF VALIDATOR PERFORMANCE AND NETWORK LATENCY, THE SYSTEM CAN HEURISTICALLY REDUCE THE NUMBER OF ACTIVE PROPOSER SLOTS PER ROUND DURING PERIODS OF ASYNCHRONY. THIS LOWERS THE PROBABILITY OF UNDECIDED SLOTS FORMING AND MAINTAINS COMMIT LATENCY AT THE COST OF SOME THROUGHPUT.

- WE IMPLEMENT HAMMERHEAD-INSPIRED LEADER REPUTATION SYSTEMS FOR OPTIMAL PROPOSER SELECTION
- A SEPARATE, LOW-FREQUENCY REPUTATION PROTOCOL TRACKS THE RELIABILITY AND PERFORMANCE OF VALIDATORS. THE MOST RELIABLE VALIDATORS ARE ASSIGNED TO THE MOST CRITICAL PROPOSER SLOTS (LIKE THE PRIMARY SLOT OF EACH ROUND), MINIMIZING THE CHANCE OF DELAYS CAUSED BY SLOW OR FLAKY NODES
- XVM SUPPORTS HYBRID TRANSACTION PROCESSING WITH BOTH CONSENSUS AND CONSENSUSLESS PATHS
- THE SYSTEM MAINTAINS TWO DISTINCT BUT INTEGRATED PATHS: A CONSENSUS PATH FOR TRANSACTIONS INVOLVING SHARED OBJECTS REQUIRING TOTAL ORDERING, AND A CONSENSUSLESS FAST PATH FOR OWNED OBJECT TRANSFERS. UNLIKE LAYERED APPROACHES, BOTH PATHS OPERATE ON THE SAME DAG STRUCTURE, ALLOWING TRANSACTIONS TO FLUIDLY MOVE BETWEEN PATHS BASED ON THEIR CONFLICT PROFILE WITHOUT PROTOCOL SWITCHING OVERHEAD.
- THE SYSTEM FEATURES EMBEDDED FAST-PATH TRANSACTIONS WOVEN DIRECTLY INTO THE DAG STRUCTURE.
- FAST-PATH VOTES ARE NOT SEPARATE MESSAGES BUT ARE EMBEDDED DIRECTLY WITHIN CONSENSUS BLOCKS AS EXPLICIT TRANSACTION VOTES. THIS WEAVING ELIMINATES THE NEED FOR VALIDATORS TO GENERATE INDIVIDUAL SIGNATURES PER FAST-PATH TRANSACTION, INSTEAD AMORTIZING THE CRYPTOGRAPHIC COST ACROSS THE ENTIRE BLOCK AND LEVERAGING THE EXISTING DAG DISSEMINATION MECHANISM.

- OUR EPOCH CHANGE MECHANISM INCLUDES SOPHISTICATED EQUIVOCATION TOLERANCE AND RECOVERY PROTOCOLS
- THE PROTOCOL USES AN EPOCH-CHANGE BIT THAT, WHEN SET, PAUSES FAST-PATH FINALIZATION WHILE ALLOWING CONSENSUS TO CONTINUE. THIS CREATES A CLEAN BOUNDARY WHERE EQUIVOCATED TRANSACTIONS FROM PREVIOUS EPOCHS CAN BE SAFELY DISCARDED WHILE ENSURING ALL PROPERLY FINALIZED TRANSACTIONS ARE PRESERVED THROUGH QUORUM INTERSECTION ARGUMENTS IN THE EPOCH'S FINAL COMMIT
- XENOBFT IMPLEMENTS CERTIFICATE AND SKIP PATTERN DETECTION FOR IMPLICIT BYZANTINE FAULT DETECTION, VALIDATORS CONTINUOUSLY ANALYZE THE DAG TOPOLOGY TO IDENTIFY WHEN  $2F+1$  BLOCKS EITHER SUPPORT (CERTIFICATE PATTERN) OR EXPLICITLY AVOID SUPPORTING (SKIP PATTERN) A PARTICULAR BLOCK. THIS IMPLICIT CERTIFICATION REPLACES EXPLICIT VOTING ROUNDS, ALLOWING THE SYSTEM TO MAKE SAFETY DETERMINATIONS THROUGH GRAPH ANALYSIS RATHER THAN SIGNATURE COLLECTION
- THE ARCHITECTURE SUPPORTS MIXED-OBJECT TRANSACTIONS COMBINING OWNED AND SHARED OBJECT INPUTS
- TRANSACTIONS CONTAINING BOTH OWNED AND SHARED OBJECTS ARE PROCESSED THROUGH A TWO-PHASE APPROACH: THEY FIRST GATHER FAST-PATH VOTES TO "LOCK" THE OWNED OBJECTS, THEN AWAIT CONSENSUS ORDERING FOR THE SHARED OBJECTS. THE CONSENSUS COMMIT THAT INCLUDES THE TRANSACTION SERVES AS THE FINALIZATION POINT, ENSURING ATOMICITY ACROSS BOTH OBJECT TYPES.



- WE UTILIZE A DOMAIN-SPECIFIC LANGUAGE, MOVE, FOR COMPREHENSIVE DAG SCENARIO TESTING AND VALIDATION.
- WE HAVE ALSO PROTOTYPED AN OBJECT-FOCUSED EXTENSION SCRIPT ON TOP OF MOVE FOR FURTHER PROGRAMMABILITY AND IMPROVED DEVEX OF NATIVE PRODUCT DEVELOPMENT ENVIRONMENT.
- THIS ENABLES PRECISE CONSTRUCTION OF COMPLEX FAILURE SCENARIOS; INCLUDING PARTIAL NETWORK PARTITIONS, STRATEGIC EQUIVOCATION, AND CRASH-RECOVERY SEQUENCES, ALLOWING US TO FORMALLY VERIFY PROTOCOL BEHAVIOR UNDER ADVERSARIAL CONDITIONS THAT ARE DIFFICULT TO REPRODUCE IN PRODUCTION NETWORKS.
- XVM INCLUDES PRODUCTION-GRADE CHECKPOINTING MECHANISMS COMPATIBLE WITH EXISTING NODE ARCHITECTURES
- CHECKPOINTS ARE DERIVED AUTOMATICALLY FROM THE CAUSAL HISTORY OF CONSENSUS COMMITS RATHER THAN REQUIRING A SEPARATE SUB-PROTOCOL. THIS INTEGRATION ENSURES THAT FAST-PATH STATE TRANSITIONS ARE CONSISTENTLY CAPTURED WITHOUT ADDITIONAL SYNCHRONIZATION LATENCY OR COMPLEX COORDINATION BETWEEN CONSENSUS AND EXECUTION LAYERS.
- THE SYSTEM FEATURES BULK CATCHUP AND SYNCHRONIZATION PROTOCOLS FOR VALIDATOR RECOVERY, WHEN A VALIDATOR RECOVERS FROM EXTENDED DOWNTIME.

- WHEN A VALIDATOR RECOVERS FROM EXTENDED DOWNTIME, IT CAN EFFICIENTLY RECONSTRUCT THE DAG STATE BY DOWNLOADING BLOCK RANGES AND VERIFYING THE IMPLICIT CERTIFICATION CHAINS, RATHER THAN PROCESSING INDIVIDUAL CERTIFICATES. THIS OPTIMIZATION DRAMATICALLY REDUCES CATCH-UP TIME FROM HOURS TO MINUTES FOR SEVERELY LAGGING VALIDATORS.
- IMPLEMENTATION INCLUDES RIGOROUS FORMAL VERIFICATION OF SAFETY AND LIVENESS PROPERTIES.
- WE'VE MECHANICALLY VERIFIED THE CORE SAFETY AND LIVENESS PROPERTIES USING THE SAME FOUNDATIONAL PROOFS AS MYSTICETI BUT EXTENDED THEM TO COVER OUR MODIFICATIONS FOR BARE-METAL EXECUTION AND TOKEN STANDARD INTEGRATION, ENSURING NO REGRESSION IN BYZANTINE RESILIENCE DESPITE PERFORMANCE OPTIMIZATIONS.
- XENOBFT SUPPORTS CONFIGURABLE WAVELENGTH PARAMETERS BALANCING LATENCY AND ASYNCHRONY TOLERANCE.
- THE DISTANCE BETWEEN PROPOSAL AND DECISION ROUNDS CAN BE TUNED BASED ON NETWORK CHARACTERISTICS, SHORTER WAVELENGTHS FOR LOW-LATENCY ENVIRONMENTS TO MINIMIZE COMMIT LATENCY, LONGER WAVELENGTHS FOR HIGH-VARIANCE NETWORKS TO INCREASE THE PROBABILITY OF OBSERVING CERTIFICATE PATTERNS DESPITE ASYNCHRONY.



# GOVERNANCE

## XENO IMPROVEMENT PROPOSALS

- XENO IMPROVEMENT PROPOSALS OR XIP ACT AS THE DECENTRALIZED GOVERNANCE MODALITY FOR THE DISTRIBUTED SYSTEM
- XIP IS THE PRIMARY MECHANISM FOR CORE PROTOCOL UPGRADATION, FOR BOTH MONETARY AND TECHNICAL.
- LABS, FOUNDATIONS, CORE DEVELOPERS, NON-PROFIT ENDOWMENTS, LOBBYING INSTITUTIONS, GOVERNMENT OR PUBLIC SECTOR INSTITUTIONS, PRIVATE SECTOR INSTITUTIONS, PAR OR VOLATILITY PRODUCTS BUILT ON TOP OF XENO, AND ANY GENERAL MARKET PARTICIPANT CAN AUTHOR AND PUBLISH XENO IMPROVEMENT PROPOSALS IN A PERMISSIONLESS MANNER.
- IF THE SUPERMAJORITY OF VALIDATORS ADOPTS THE CHANGES OR UPGRADATIONS THEORIZED IN THE PROPOSAL, THE NETWORK PROCEEDS TO IMPLEMENT THE CHANGES IN A PERMISSIONLESS MANNER.
- EVEN THOUGH THE XIPS ARE PERMISSIONLESS TO AUTHOR AND PUBLISH, THEY WILL GO THROUGH A THOROUGH REVIEW PROCESS WHERE CORE PROTOCOL ARCHITECTS, INTERNAL ADVISORY COMMITTEES AND EXTERNAL ADVISORY COMMITTEES FORM A DIALECTICAL SYNTHESIS FOR EFFICIENT IMPLEMENTATIONS.
- WE WILL NOT DENY ANY ALLEGATIONS REGARDING REVIEW PROCESS AS THE INFORMAL EXERCISE OF POWER, IT IS.

# OF-CHAIN/NON-CORE PROTOCOL INITIATIVES

## XENOPRIME

- XENOPRIME IS A PRIME-BROKER ADJACENT INFRASTRUCTURE THAT UTILIZES A USD-DENOMINATED BALANCE SHEET AS AN ACCOUNTING STANDARD
- WHILE BEING A PRIME BROKER ADJACENT ARCHITECTURE, WE DO NOT COMPETE WITH OTHER PRIME BROKERS IN ANY WAY OR FORM, WE ARE EXTREMELY ASSET-FOCUSED AND WILL BE PROVIDING USD AND \$XENO-DENOMINATED SOLUTIONS FOR XENOSYSTEMS CORE AND OTHER ECOSYSTEM PRODUCTS.
- WE IN FACT PREFER TO WORK WITH OTHER PRIME BROKERS, WHERE WE BECOME THE BEARERS OF TRUST ASSUMPTIONS FOR OUR COUNTERPARTIES AND ROUTE THE BLOCK TRADES THROUGH THE INFRASTRUCTURE OF THE PB PARTNERS.
- XENOPRIME WILL PROVIDE ALL CORE FUNCTIONS OF FINANCIAL MARKETS WHERE EXTERNAL TRUST ASSUMPTIONS (OFF-CHAIN INFRASTRUCTURE, PRODUCTS, COUNTERPARTIES AND UNIT OF ACCOUNTS) ARE INVOLVED; ACCESS, TRUST, DISCOVERY, CLEARING, COLLATERAL, CREDIT TO VEHICLES AND MANDATES THAT USE USD AS THE DE FACTO ACCOUNTING STANDARD.
- MANY PERMANENT AND LONG-TERM LIABILITY VEHICLES, I.E PENSION FUNDS, INSURANCE COMPANIES, ENDOWMENTS, PRIVATE WEALTH MANAGERS, SINGLE/MULTI-FAMILY OFFICES, STILL DO NOT HAVE AN ACTIVE (<5% OF TOTAL PORTFOLIO) ALLOCATION MANDATE TO CRYPTOCURRENCIES.

- WHICH MEANS, EVEN IF THOSE ALLOCATORS CHOOSE TO ALLOCATE TO \$XENO, VIA PRIVATE PLACEMENTS OR OPEN MARKET ACQUISITIONS, THEY MUST HAVE AN INTERMEDIARY IN BETWEEN WHICH WOULD PERFORM AN ASSET TRANSFORMATION FOR THEM TO HOLD THE EXPOSURE VIA REGULATORY WRAPPERS, STRUCTURED PRODUCTS, CREDIT NOTES, FUND ALLOCATIONS, ETC VS HOLDING THE RAW \$XENO-DENOMINATED EXPOSURE ON THE BALANCE SHEET UNTIL THE REGULATIONS FOR CRYPTO NATIVE ASSET EXPOSURE IMPROVE.
- DATs ARE A FORM OF THESE ASSET TRANSFORMATIONS, BUT WE CONSIDER IT TO BE EXTREMELY ADVERSE, INFLATED AND INEFFICIENT FOR COUNTERPARTIES AND THERE ARE MANY OTHER STRUCTURES WITH REGULATORY AND COMPLIANCE SOUNDNESS.
- XENOPRIME WILL ALSO BE AN ACTIVE PARTICIPATING AGENT PRIMARILY BEHIND THE LIQUIDITY AND FOREIGN EXCHANGE FUNCTIONS OF \$XENO/USD AND OTHER FIAT-DOMINATED PAIRS, ALIGNING ITSELF WITH THE MONETARY POLICY CHOICES OF THE CORE PROTOCOL.
- XENOPRIME WILL BE CONSTRUCTING WHITE-GLOVE DOLLAR-DENOMINATED \$XENO, \$STXENO AND OTHER ECOSYSTEM PAR PRODUCTS AND DISTRIBUTE TO THE FIAT UOA MANDATES AND VEHICLES THAT CANNOT HOLD CRYPTO EXPOSURE DUE TO REGULATORY OR COMPLIANCE REASONS.

## **XENO INSTITUTE**

- XENO INSTITUTE IS A NON-PROFIT ACADEMIC FOUNDATION WORKING ON RESEARCH, DEVELOPMENT, ADVOCACY AND EDUCATION OF CORE XENO PROTOCOLS, ASSETS. PRODUCTS, POLICIES.
- IT WILL COLLABORATE WITH PUBLIC PORTFOLIOS, PRIVATE PORTFOLIOS, ECONOMIC POLICY INSTITUTES, LOBBYING INSTITUTE, GOVERNMENT INSTITUTIONS, AND CENTRAL BANKING COMMITTEES.
- XENO INSTITUTE WILL BE DESIGNING PARA-ACADEMIC AND ACADEMIC EDUCATIONAL PROGRAMS, COURSES, INITIATIVES, JOURNALS AND OTHER PUBLICATIONS IN COLLABORATION WITH EXISTING ACADEMIC, RESEARCH, AND MONETARY POLICY INSTITUTES.
- XENO INSTITUTE WILL BE AN ACTIVE VOICE IN PROTOCOL UPGRADES AFTER THE INITIAL ROLLOUT.
- XENO INSTITUTE WILL BE THE CORE CONTRIBUTOR FOR THE SEMIOTIC STRUCTURIZATION OF THE CANONICAL PORTFOLIO THEORY OF THE XENOSYSTEMS.

# PRODUCT SPECIFICATIONS BUILT ON TOP OF \$XENO

- IT'S A LONG LIST TO COVER EVERY TYPE OF ASSET, PRODUCT, CONTRACT, SYSTEMATIC TRADING MODULE, AND FINANCIAL DESIGN THAT COULD BE PERMISSIONLESSLY DEPLOYED ON TOP OF \$XENO AS THE CORE ASSET.
- THEREFORE INITIALLY, WE CATEGORIZE PRODUCTS INTO TWO BROADER CATEGORIES
  1. VOLATILITY PRODUCTS: PRODUCTS THAT EXPRESS THE VOLATILITY IN RELATION TO THE CORE DENOMINATOR, \$XENO.
  2. PAR PRODUCTS: PRODUCTS WHICH CAPTURE, STRUCTURE, AND MONETIZE THIS VOLATILITY AND DISTRIBUTE YIELDS GENERATED IN \$XENO-DENOMINATED COUPONS WITH A \$XENO-DENOMINATED PAR ASSET WHICH REPRESENTS THE DEPOSITED PRINCIPAL.
- THESE SPECIFICATIONS ONLY CONSIST OF NON-SOVEREIGN, NON-INTERNALIZED, EXTERNAL, AND PRIVATE PRODUCTS THAT LEVERAGE THE SOVEREIGN AND INTERNALISED FUNCTIONS.

## VOLATILITY PRODUCTS

- ANY ASSET CAN BE PERMISSIONLESSLY DEPLOYED ON THE INTERNALIZED EXCHANGE FUNCTION.
- THE ASSET IS DENOMINATED BY \$XENO, IT CAN ECONOMICALLY SUSTAIN ITSELF AS LONG AS IT EXPRESSES VOLATILITY TO THE CORE ASSET IT IS DENOMINATED BY, \$XENO.

- WHICH MOST NON-PAR ASSETS DEPLOYED ON TOP OF THE INTERNALIZED EXCHANGE FUNCTION DE FACTO WOULD BE BY VIRTUE OF LOWER NOTIONAL SIZE AND DEALER MARKETS COMPARED TO THE CORE ASSET \$XENO.

## **PAR PRODUCTS**

- ANY PAR ASSET CAN BE PERMISSIONLESSLY DEPLOYED ON THE INTERNALIZED EXCHANGE FUNCTION.
- THESE ASSETS CAPTURE, STRUCTURE, AND MONETIZE THE VOLATILITY PRODUCED BY THE PRODUCTS SPECIFIED IN THE CATEGORY-1 VIA MULTIPLE MODALITIES, NAMELY SOVEREIGN DEBT (\$STXENO) LEVERAGED EXPOSURE, DISCRETIONARY L/S, DELTA NEUTRAL MARKET MAKING, STATISTICAL ARBITRAGE, INTER-FUNCTION ARBITRAGE, LIQUIDATION ARBITRAGE, CASH-BASIS/FUNDING RATE ARBITRAGE, MULTI-LEG ARBITRAGE, ETC.
- THEY CAN DISTRIBUTE YIELDS GENERATED IN \$XENO-DENOMINATED COUPONS WITH A \$XENO-DENOMINATED PAR ASSET, WHICH REPRESENTS THE DEPOSITED PRINCIPAL.



# KEY RISK ASSUMPTIONS AND ASSURANCES

- AS XENOSYSTEMS DOES NOT BREAK THE CONTINUITY OF THE FINANCIAL THEORY AND SPECULATIVE MONETARY DESIGNS PRACTISED BY MONETARY SOVEREIGNS TO DATE, IT FACES SIMILAR RISK ASSUMPTIONS AS A SOVEREIGN CURRENCY WOULD. NAMELY RISK ASSUMPTIONS ON INTEREST RATE, PAR, FOREIGN EXCHANGE, AND PRICE LEVEL. THEREFORE, WE BORROW RESEARCH AND DEVELOPMENTS THAT OUR PRECURSORS DID IN THE CONTEXT OF US DOLLAR REGIME OR ANY OTHER G7 MONETARY SOVEREIGNS AND TRY TO ADDRESS THE ASSURANCE FOR THOSE RISKS BY LEVERAGING THEORY, PRACTICES AND LITERATURE BUILT AROUND THESE SOVEREIGN CURRENCIES.

## INTEREST RATE

- THE PROTOCOL WILL NEVER RADICALLY HIGHER OR LOWER THE ARTIFICIALLY INDUCED NET DEFICIT RATES/INTEREST RATES (LEADING TO NON-CREDIT ISSUANCE INFLATION) UNLESS THERE'S AN EXTREMELY STRONG MONETARY INCENTIVE TO DO SO. THE FLOOR FOR NON-CREDIT ISSUANCE INFLATION WILL STAY <5% DURING THE INITIAL ROLLOUTS, WHICH WILL GO LOWER AS THE INTERNALIZED FUNCTIONS PRODUCE DISTRIBUTABLE YIELDS IN THE FORM OF A RISK-FREE RATE.
- THE NATURAL RATE OF INTEREST FOR XENOSYSTEMS IS THE DEFICIT AS A FLOOR + YIELDS ACQUIRED VIA INTERNALIZED FUNCTIONS, THIS RISK FREE RATE IS THE COST OF CAPITAL TO BORROW FROM THE INTERNALIZED LENDER FUNCTION.



## PAR

- THE MAIN SOVEREIGN PAR PAIR OF THE MONETARY SYSTEM IS;  $\$STXENO/\$XENO$ , IT REPRESENTS THE ULTIMATE SPREAD OF THE SOVEREIGNTY, IN WHICH THE LEGITIMACY OF THE SOVEREIGN ORDER IS DENOMINATED IN.
- THE PAIR REPRESENTS THE “ABSOLUTE PAR” WITH LENDER AND DEALER OF “ALL” RESORTS GUARANTEES BY VIRTUE OF CORE PROTOCOL POLICIES.

## FOREIGN EXCHANGE

- $\$XENO/USD$  PAIR REPRESENTS THE FOREIGN EXCHANGE FUNCTION FOR XENOSYSTEMS
- APART FROM  $\$XENO$  BEING THE CORE ASSET TO THE SYSTEM; TO PAY BASE FEES, TO PAY PRIORITY FEES, IN WHICH CREDIT CREATION HAPPENS, IN WHICH INTEREST PAYMENTS ACCRUE, IN WHICH LIQUIDATABLE POSITIONS ARE DENOMINATED IN, IN WHICH ALL THE PAIRS ON INTERNALIZED EXCHANGE FUNCTION ARE DENOMINATED IN, IN WHICH THE INTERNALIZED AND EXTERNAL LENDER AND DEALER FUNCTION LENDS AND DEALS IN, IN WHICH THE PAR PRODUCTS BUILT ON TOP OF  $\$XENO$  ARE DENOMINATED IN, ETC.  $\$XENO$  ALSO IS AN INSTRUMENT TO ACCESS THE RISK-FREE YIELDS PROVIDED BY  $\$STXENO/\$XENO$  PAIR AND RISK ADJUSTED YIELDS PROVIDED BY ECOSYSTEM PRODUCTS FOR PUBLIC AND PRIVATE PORTFOLIOS, LIKE HOW YOU WOULD NEED USD TO PURCHASE US TREASURIES, FIXED INCOME AND EQUITY PRODUCTS ON ANY REGULATED VENUE.

- A KEY CONCERN ONE MIGHT HAVE IS, CREDIT-ISSUANCE LEADING TO CAPITAL OUTFLOWS; CREDIT-DRIVEN ISSUANCE IS NOT NET ISSUANCE OR DEFICIT ISSUANCE, A DEBT POSITION IS CREATED IN \$XENO MUST BE CLOSED BY PAYING BACK \$XENO, THE INTEREST PAYMENTS ARE ALSO DENOMINATED IN \$XENO, AND IN CASE OF A DEFAULT, COLLATERAL AUCTIONS ARE ALSO DONE IN \$XENO.
- THEREFOR CREDIT-DRIVEN MONETARY EXPANSION BRINGS NET INFLOWS TO THE SOVEREIGN CURRENCY, BY A HUGE MARGIN COMPARED TO OTHER MONETARY POLICIES AND NOT THE NET OR NOTIONAL OUTFLOWS.
- AS THE INTERNALIZED FUNCTIONS PRODUCE RISK-FREE SURPLUSES DISTRIBUTED VIA \$STXENO AND EXTERNAL PAR PRODUCTS STRUCTURE VOLATILITY, LEVERAGE AND ARBITRAGE PRODUCTS ON THE TOP OF INTERNALIZED FUNCTIONS, THE NET DEFICIT INFLATION WILL BE ZERO AND CONTRACTIONARY DUE TO INTEREST PAYMENTS OCCURRED IN \$XENO, WITHOUT EVEN COUNTING ALL SPREADS MADE VIA OTHER INTERNALIZED FUNCTIONS. WHICH BRINGS NET INFLOWS TO THE SOVEREIGN CURRENCY AND POSITIONS IT AS AN STORE OF VALUE/LONG-HORIZON SAVINGS ASSET ON TOP OF DEFECTO UNIT OF ACCOUNT AND MEDIUM OF EXCHANGE.

## PRICE LEVEL

- OVERISSUANCE OF CREDIT COULD LEAD TO PRICE LEVEL IMBALANCES, \$XENO-DENOMINATED VOLATILITY AND PAR PRODUCTS COULD FACE ASSET INFLATION IN SUCH SCENARIOS, WHICH MEANS, \$XENO-DENOMINATED ASSETS COULD GET EXPENSIVE JUST BY VIRTUE OF BEING \$XENO-DENOMINATED, A SELF-REFERENTIAL CYCLE.
- TO ADDRESS THIS, WE EMBEDDED A HARD-CODED DEBT CEILING AND THOROUGH CREDIT ISSUANCE POLICIES INTO THE CORE PROTOCOL, VOTED ON BY THE SUPERMAJORITY VALIDATOR QUORUM.
- CREDIT ISSUANCE IS THE FUNCTION OF MARKET-DRIVEN PROFITABILITY; IN THE CONTEXT OF A GIVEN UNIVERSAL INVESTMENT MANDATE, IF THE COST TO BORROW IS HIGHER THAN THE RETURNS THE MARKET COULD PROVIDE, SUCH SCENARIOS ACT AS A FUNCTIONAL INSOLVENCY TO THE MANDATE.
- THEREFORE MARKET FUNCTION ITSELF ACTS AS THE NATURAL CREDIT ISSUANCE POLICY EVEN IN THE ABSENCE OF A HARD-CODED DEBT CEILING.
- THE CORE MONETARY POLICIES ACTIVELY DISINCENTIVISE UNPRODUCTIVE ARBITRAGES AND MONETIZATIONS ON UNWORTHY INEFFICIENCIES.
- EVEN ANY MINUTE PRICE LEVEL FLUCTUATIONS ARE CONSTANTLY MONITORED BY INTERNAL AND EXTERNAL COMMITTEES, AND ACTED UPON VIA PROPOSAL PUBLICATIONS, REVIEWS AND UPGRADATIONS.

# ROLLOUT TIMELINES

- GIVEN THE INHERENT COMPLEXITY AND GENEALOGICAL CONTINUITY OF THE PROJECT WE ATTEMPT TO PRESERVE, WE APPROACH A PHASE-WISE ROLLOUT MODEL.
- THIS MULTI-EPOCH ROLLOUT FRAMEWORK ALLOWS US TO OBSERVE THE CONTINGENCIES AND FINE-TUNE THE FOLLOWING EPOCHS AFTER A GIVEN NETWORK UPGRADE.
- IN THEORY, WE COULD ROLL OUT THE END-STATE WHICH WE ENVISION FROM THE START, FROM THE FIRST PHASE. BUT WE DO NOT WISH TO BE “TOO EARLY” BY NOT FOLLOWING THE MARKET FUNCTION.
- THE INITIAL ROLLOUT TIMELINE WITH THE SIMPLEST VERSION OF THE MONETARY AND TECHNICAL SPECIFICATIONS AND POLICY HAS BEEN SET FOR Q3 2026 - Q2 2027.
- INTERNAL AND EXTERNAL COMMITTEES WILL BE CLOSELY OBSERVING THE MONETARY AND TECHNICAL FUNCTIONS AFTER THE INITIAL ROLLOUT, AND DESIGNING THE ROLLOUT STRATEGIES OF THE NEXT PHASES.

# POST-SCRIPT

- NONE OF THE SPECIFICATIONS, MONETARY OR TECHNICAL, ARE ABSOLUTE AND SUBJECTS TO CONTINUES EVOLUTION VIA RESEARCH AND DEVELOPMENT EFFORTS.
- ONLY THING WE CONSIDER TO BE ABSOLUTE IS OUR DOCTRINE OF SOVEREIGNTY AND SOVEREIGN SECURITY WHICH IS, “SOVEREIGNTY IS A SYSTEM OF SPREADS AND PERPETUAL SUCCESSIONS”.
- EVERY RESEARCH AND DEVELOPMENT EFFORT FOR THE EVOLUTION OF MONETARY AND TECHNICAL SPECIFICATIONS WILL BE DONE BY KEEPING THIS DOCTRINE AS THE NORTH STAR.
- EVEN THOUGH WE’VE CONSOLIDATED AS MANY CORE PIECES OF INFORMATION ONE COULD IN THE DECK, AND EVEN EXTENDED IT TO MORE RELEVANT CONTEXT COMPARED TO THE MEMO, IT’S NOT INTERNALLY SUBLIME FOR US, WE DESIGNED THIS DECK FOR EXTERNAL SUBLIMITY. FOR YOU, THE READER TO INTERPRET IT BETTER. WE WOULD DEFINITELY ENCOURAGE YOU TO READ THE MEMO TO BE GENEALOGICALLY AWARE OF THE TELEOLOGICAL CONTEXT.
- ANY NOTES, QUESTIONS, MEMOS, ANTI-THESES, CALLS FOR ADVOCACY, CALLS FOR CONTRIBUTION, ETC ARE INVITED AT [MEET@XENOSYSTEMS.XYZ](mailto:MEET@XENOSYSTEMS.XYZ)