Xeno Whitepaper
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1 Introduction

Xeno is building the NFC infrastructure for a **new global payments network**. Our vision is not just to reduce fees on crypto transactions but to stand **shoulder-to-shoulder with Visa and Mastercard** as a parallel rail for everyday commerce.

With Xeno, merchants can present "Tap to Pay" just as they do with Visa or Mastercard. Consumers tap their Xeno wallet instead of a plastic card, and settlement happens **instantly, on-chain, without fraud liability, intermediaries, or chargebacks**.

By fusing the **familiarity of card payments** with the **finality and openness of on-chain settlement**, Xeno enables merchants and consumers worldwide to transact with stablecoins as easily as cash — but with global reach and digital speed.

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2 Market Opportunity & Problem Statement

Traditional payment networks present significant pain points for merchants:

- **High Fees:** Visa, Mastercard, and AmEx charge between 1.5% and 3.3% per transaction, plus hidden acquirer fees.

- **Delayed Settlement:** Merchants wait 1–3 days for funds to clear.

- **Chargebacks & Fraud Costs:** Merchants lose billions annually to chargebacks. Studies show that **20–30% of all chargebacks are "friendly fraud"**, where consumers dispute legitimate purchases. In e-commerce, this can rise to **40–60% of chargebacks**.

- **Compliance Burden:** Merchants must manage costly AML/KYC overhead while still being exposed to card fraud and disputes.

Crypto POS products exist, but most either:

- Route through legacy rails (Visa/Mastercard), or

- Force users into clunky QR flows with poor UX and high fees (0.5–2%).

*Xeno addresses these pain points directly — delivering **instant, final settlement with near-zero fees, no chargebacks, and built-in AML safeguards**.*

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3 Xeno Solution Overview

*Xeno is not just another crypto payments tool — it is a **parallel payments network** designed to stand alongside Visa and Mastercard. Merchants present "Tap to Pay," and consumers can choose their card or their Xeno wallet. Behind the scenes, Xeno settles **instantly, on-chain, without intermediaries, fraud risk, or chargebacks**.*

Component	Function	Key Highlights
Xeno Wallet (User)	Mobile app (iOS/Android) that stores USDC and other stablecoins, supporting NFC "tap-to-pay."	Self-custodial wallet, host card emulation / secure element
Xeno Reader (Merchant)	POS app or SDK that processes payments. Deployable as standalone or inside existing PSP terminals.	Works next to Visa/ Mastercard/ Amex - Supports wallet-to-wallet and PSP-offramp modes
Relayer (Paymaster)	On-chain contracts + cloud service that covers gas fees and publishes transactions.	Merchants/PSPs can run their own relayer- Open API for integrations- Default Xeno relayer ensures smooth onboarding

Key Features

- **Wallet-to-Wallet by Default:** Settlement happens directly between consumer and merchant wallets.

- **PSP Flexibility:** PSPs that require fiat payouts can integrate their own off-ramps — Xeno doesn't lock them in.

- **Compliance Layer:** Built-in wallet screening, sanctioned country blocking, and cash-equivalent limits (~$10k/transaction, no KYC required).

- **No Chargebacks:** *Transactions are final on-chain. Like cash, once tapped, funds are settled — eliminating "friendly fraud" chargebacks that plague card networks (20–60% of all online disputes).*

- **Open Relayer Ecosystem:** *While Xeno operates its own relayer, the system is permissionless — any acquirer, PSP, or merchant group can run one, ensuring resilience and decentralization.*

- **Chain-Agnostic Expansion:** *Starting with* **USDC on Base***, expanding to all treasury-backed, compliant stablecoins (U.S. Genius Act, EU MiCA, and beyond) across fast-finality chains like Solana and Stellar.*

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4 Technical Architecture
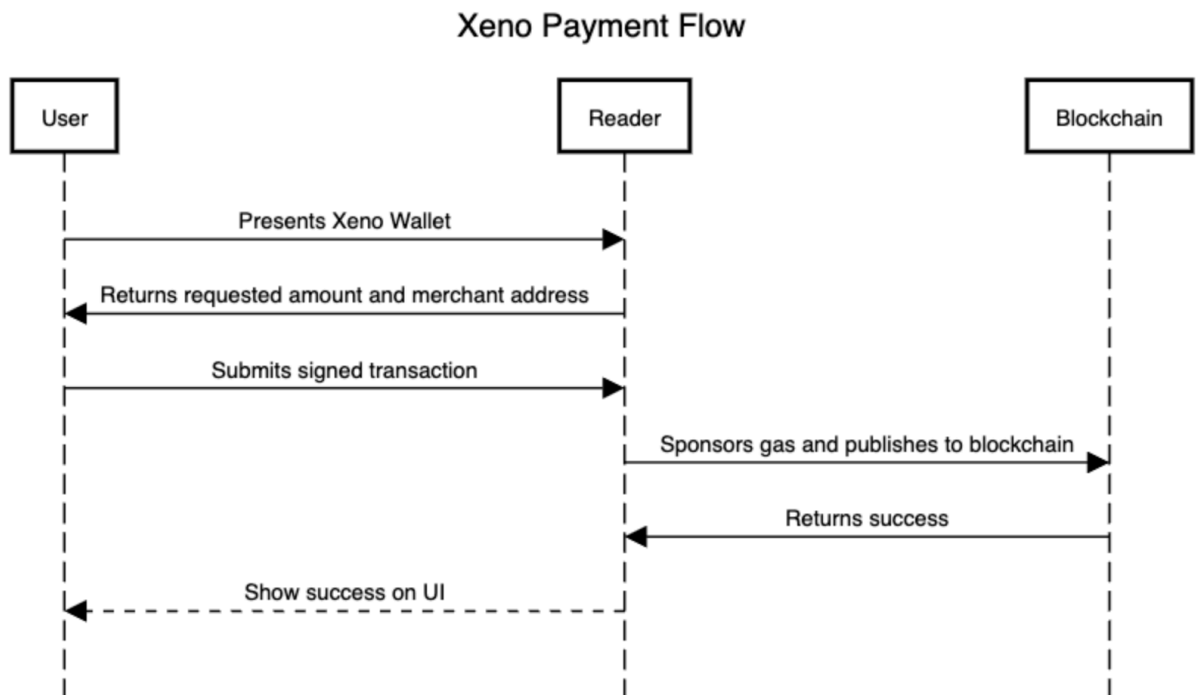
Xeno Payment Flow

NFC Payment Flow

1. **Reader → Phone (HCE/SE)**
   Reader broadcasts: `[[amount],[merchant_address],[nonce]]`

2. **Phone**
   Wallet verifies details → prompts user → signs the **payment intent** with the user's private key (EIP-712).

3. **Phone → Reader**
    Signed intent is passed back over the same NFC channel.

4. **Reader / Relayer**
    Relayer adds its own signature and submits a meta-transaction to Base using Sponsored Transactions.

5. **Blockchain**
    Smart-contract escrow releases USDC to the merchant wallet in ~2 seconds.

6. **Reader → POS**
    Returns ISO-8583-style "APPROVED" code, identical to a Visa transaction, so existing POS software requires **no changes**.

Xeno abstracts the settlement layer, allowing merchants to accept stablecoins from wallets on any chain with fast finality (<5s). This includes Base and other high-throughput chains such as Solana, Aptos, and future high-performance networks.

Co-existence With Card Rails

Merchants present "Tap Card" option. If customers present a Xeno Wallet, they enjoy near-zero fees; if not, legacy card rails proceed as usual.

Security

- Keys isolated in Secure Enclave / Android Keystore.

- Contracts formally verified; optimistic fraud detection.

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5 Relayer & Decentralisation

Xeno's relayer infrastructure is designed to ensure a **seamless experience for users** while maintaining the openness and resilience of an on-chain payments network.

Default Relayer

- Xeno operates a **default relayer** that sponsors gas fees on behalf of consumers.

- This ensures that from day one, users enjoy a **zero-gas, frictionless payment experience**, and merchants receive **instant, final settlement** without requiring technical setup.

Open Relayer Ecosystem

- *The relayer layer is **permissionless**: any Payment Service Provider (PSP), acquirer, or even a large merchant group can deploy their own relayer instance.*

- *Relayers compete on reliability, speed, and value-added services (e.g., compliance integrations, advanced analytics).*

- *This open model prevents vendor lock-in and encourages an ecosystem of **specialized relayers** tailored to regional or industry-specific needs.*

Resilience & Decentralization

- *Multiple relayers strengthen the network by eliminating single points of failure.*

- *Merchants can choose the relayer that best aligns with their needs (e.g., lowest cost, specific compliance modules, regional support).*

- *In practice, this means Xeno achieves both the **convenience of a default service** and the **resilience of a decentralized ecosystem**.*

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6 Merchant-Centric Revenue Model

Xeno's revenue approach is designed to maximize merchant upside while remaining competitive against traditional rails.

Transaction Fees

- ***Per-transaction fee:** TBD, but **significantly lower** than Visa/Mastercard's 1.5%–3.3%.*

- *Wallet-to-wallet payments can be processed at near-zero cost.*

Optional Revenue Streams

- ***Fiat Off-Ramp:** Same-day ACH / SEPA payouts of stablecoins into merchant bank accounts (0.10%–0.25%, volume-tiered).*

- ***AML & Compliance Services:** Merchants can opt into advanced wallet screening and analytics for a subscription fee.*

- **Token Swaps:** In-app swaps (USDC ↔ ETH, etc.) via DEX aggregator (0.20% spread).

By shifting fraud liability away from merchants and offering **cash-equivalent finality**, Xeno's cost structure is leaner and more predictable than card networks.

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7 Fraud & Chargebacks

The Problem

Merchants today lose billions annually to **fraudulent chargebacks**, with "friendly fraud" (legitimate purchases later disputed) making up a significant share. Studies show that:

- Between **20–30% of all chargebacks** are classified as friendly fraud.

- In e-commerce, this number can be as high as **40–60%** depending on the industry.

- U.S. merchants alone lose an estimated **$25B+ annually** due to chargebacks, including lost revenue, fees, and overhead.

Chargebacks were originally designed to protect consumers against fraud on legacy card networks, but in practice, they have become a heavy cost borne by merchants.

Xeno's Approach

- **Final Settlement:** Every Xeno transaction is final and cannot be reversed on-chain.

- **Cash-Equivalent Model:** In-person tap-to-pay mirrors physical cash: once handed over, the payment is complete.

- **Merchant Benefit:** By eliminating chargebacks, merchants keep almost all of their revenue, avoiding the hidden tax of fraud and disputes.

This "no chargebacks" design is a **feature, not a bug** - shifting payments back to the simplicity and certainty of cash, while retaining the digital speed of stablecoins.

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8 Compliance & AML

While Xeno mirrors cash in terms of finality, it also incorporates **compliance safeguards** to ensure responsible adoption and regulatory alignment.

Key Compliance Features

- **No KYC:** Xeno does not require end-users to undergo KYC. This keeps the experience frictionless and preserves the "cash-like" nature of payments.

- **Wallet Screening:** Merchant and consumer wallets can be screened against sanction lists and high-risk addresses.

- **Transaction Limits:** Merchants should enforce **cash-equivalent limits** (typically ~$10k/day, depending on jurisdiction) without additional KYC. This mirrors the regulatory treatment of physical currency while keeping the system practical for consumers.

Philosophy

Xeno is built on the principle that **payments should be as simple as cash, but safer for compliance**. Merchants and PSPs can opt into additional monitoring services while still benefiting from instant, final settlement.

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9 Tokenised Consumer Incentives

- **Xeno Reward Token (XN)** - ERC-20 token. Earned per dollar spent.

- Merchants can sponsor "double-cashback days" or stake XN to boost rewards.

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10 Wallet Integrations

Xeno's Host Card Emulation (HCE) layer is **wallet-agnostic**. Any self-custodial EVM wallet - MetaMask, Coinbase Wallet, Trust, etc.- can integrate our "tap-to-pay" protocol so users spend USDC straight from the wallet they already know.

Developer Support

- **Mobile SDKs:** Native Android & iOS kits coming Q1 2026.
- **React Native module:** Coming 2026 for hybrid apps.
- **Additional support:** Available upon request and commercial dependent.

11 Go-to-Market Strategy

1. **Trial Merchants** - *Private jet, hospitality and F+B merchants lined up to integrate from day one.*

2. **PSP Partnerships** - *PAX, Sunmi, Urovo, Castles, Ingenico, Verifone SDKs for one-tap firmware upgrade for payment acquirers like Verifone Global, Teya, Network International, and Payroc.*

3. **Wallet Integrations (Roadmap)** - *opt-in flows for Coinbase Wallet, MetaMask, Phantom.*

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12 Roadmap (Highlights)

Milestone	Quarter
Android Wallet Beta (Base)	Q3 2025
Merchant Reader SDK	Q3 2025
iOS Wallet	Q4 2025
Off-Ramp Portal (US, EU)	Q4 2025
Stablecoin Yield Module	Q1 2026
Third-Party Wallet Support	2026
Multi-Chain & Fast-Finality Support (Solana, Stellar, Aptos, etc.)	2026

Expansion to Regulated Stablecoins (U.S. Genius Act, EU MiCA, and other treasury-backed assets)   2026+

*Xeno's roadmap is designed to scale from **Base + USDC** to a **global network of compliant stablecoins across multiple chains**, ensuring long-term sustainability and regulatory alignment.*

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13 Future Extensions - Zero-Knowledge Proof via NFC

*Long-term, the same HCE/APDU channel can transmit a **ZKP credential** instead of a payment intent. Example:*

- ***Proof** - Phone signs a ZK-SNARK verifying attribute (such as age); reader confirms validity without seeing wallet address or personal data.*
- ***Membership Passes** - Season-ticket proofs, discount eligibility, etc.*
- ***Confidential Spending -** ZK Compression tokens for anonymous spending*

These use cases share >90 % of the current payment stack, enabling new verticals with minimal extra engineering.

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14 Risk Factors & Legal Considerations

- *Stablecoin regulation (MiCA, US).*

- *Smart-contract risk (audits, bug bounties).*

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15 Conclusion

***Xeno on Base** fuses contactless convenience with on-chain freedom:*

- ***Near-zero fees** - merchants keep almost all of every sale.*

- ***Familiar UX** - "tap-to-pay" alongside Visa - similar feel to Apple/Google Pay*

- **Merchant upside** - off-ramp revenue, swap spreads.

- **Future-proof** - wallet-agnostic, ZK-ready, and EVM-composable.

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16 Contact

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