



FINANCE

Technical Architecture

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*Blockchain infrastructure, smart contracts and
security design*

■ Technical Architecture

The ZimX platform is built as regulated financial infrastructure. Every architectural decision prioritises compliance, auditability, and operational resilience over novelty or speed of deployment. This document covers the blockchain layer, smart contract framework, security architecture, AI platform design, and the connectivity strategy that makes the system work for users across the full range of device and network conditions found in Zimbabwe.

■ 1. Blockchain Infrastructure

ZimX is currently designed for Base, an Ethereum-compatible Layer 2 network built by Coinbase. Base was selected after evaluating multiple networks against four criteria that matter for regulated financial infrastructure.

Security. Base inherits Ethereum's security model through its optimistic rollup architecture, with settlement finality anchored on Ethereum mainnet. This means ZimX transactions benefit from one of the most battle-tested smart contract environments in the industry. Ethereum mainnet has secured hundreds of billions of dollars in value since 2015. Base inherits that security foundation while operating at a fraction of the cost.

Cost. Transaction fees on Base are typically a fraction of a cent—often under \$0.01 per transaction. This is critical for a corridor where many transfers are small, regular amounts of \$50–\$200. Legacy correspondent banking costs make micro-remittances economically unviable. On Base, a \$10 transfer costs the same to settle as a \$12,500 transfer: virtually nothing. This enables ZimX to serve the families sending \$50 for school fees with the same infrastructure that handles larger commercial settlements.

Speed. Current block times of approximately two seconds deliver near-instant on-chain confirmation. A ZIGX settlement that would take 3–5 business days through correspondent banking completes on-chain in seconds. Actual end-to-end delivery time depends on the local payout channel—mobile money payouts can be near-instant, bank transfers may take longer—but the cross-border settlement leg is effectively instant.

Institutional compatibility. Base supports the institutional custody solutions, compliance tooling, and transaction monitoring infrastructure that regulated financial services require. Major custodians, compliance providers, and monitoring platforms operate on Base, making it straightforward to build regulated infrastructure on top.

Final network selection remains subject to audit outcomes and custody compatibility. The architecture is designed with chain-abstraction principles so that migration is possible if circumstances require it.

■ 2. Smart Contract Framework

Core smart contracts have been professionally developed by Boosty Labs, a blockchain development firm with experience across De Fi, token infrastructure, and institutional-grade smart contract systems. The initial on-chain components include:

ZIMX Token Contract. Fixed total supply of 1,000,000,000. No minting or supply manipulation mechanisms. ERC-20 compatible. Designed for ecosystem utility, access entitlements, and fee tiering. Independent security audit completed by Hacken with zero critical or high-severity findings.

ZiGX Token Contract. USDC-pegged settlement token with minting controls. Maximum supply cap of 1,000,000,000—a safety ceiling, not a target. Minting occurs only against verified reserve deposits, with USDC serving as the initial and primary reserve asset, through multi-signature authorisation and full audit trail. Independent security audit by Hacken is scheduled.

Audit Programme

Deployment is gated on independent third-party security audits. No contract deploys to mainnet until audit findings are fully resolved. ZIMX contracts have undergone independent audit by Hacken. ZiGX contracts are scheduled for audit, with the higher sensitivity of reserve-backed instruments warranting additional scrutiny. Audit reports will be publicly disclosed through ZimX Vault. The approach is simple: no audit, no deployment.

■ 3. Security Architecture

Smart Contract Security

Development follows security-focused practices: formal requirements documentation, internal code review before external audit, and comprehensive test coverage. Design principles include defensive programming, reentrancy guards, overflow protection, and role-based access control on all privileged functions. The principle of least privilege governs all access: every function is locked down by default and opened only with explicit authorisation and audit trail.

Treasury Security

Multi-signature controls require multiple signers for major operations, with geographic and organisational distribution using hardware wallet signing devices. Time-lock mechanisms provide a review window for large movements —major or treasury operations are visible on ZimX Vault before they execute, creating a public accountability window. Cold storage holds the vast majority of reserves; hot wallets maintain only the operational liquidity needed for active settlement.

Infrastructure Security

Platform infrastructure includes DDoS protection, geographic distribution for resilience, redundant systems, and continuous monitoring. API security encompasses rate limiting, authentication controls, modern encryption standards, and input validation. Data protection practices align with GDPR and applicable Zimbabwean data protection requirements. Security monitoring operates continuously with automated alerting for anomalous patterns.

■ 4. ZiRA® Platform Architecture

ZiRA's architecture deliberately separates the AI-powered intelligence layer from settlement infrastructure. ZiRA never touches funds. It delivers intelligence and helps users navigate the ecosystem. This separation is a regulatory design choice: ZiRA operates as an information and intelligence layer, while settlement functions operate under their own compliance framework.

The design goal is that the experience on a £1,200 smartphone in London and a £15 feature phone in rural Masvingo is functionally equivalent. Different interfaces, same capabilities, same access to intelligence.

AI & Analytics Engine

ZiRA's AI layer delivers real-time intelligence tailored to each user type.

For consumers: remittance comparison across providers showing fees, exchange rates, and total cost; financial literacy content; news and cultural knowledge; and voice support in English, Shona, and Ndebele.

As the ecosystem grows, ZiRA is designed to deliver merchant intelligence including sales analytics and automated reconciliation.

Offline-First Design

ZiRA is designed with offline-first principles for low-connectivity environments. Transaction queuing stores operations locally on the device and synchronises when connectivity returns, using store-and-forward patterns with conflict resolution for concurrent updates. USSD access operates over basic GSM signal without any data requirement, connecting through local mobile network aggregators.

The platform treats intermittent connectivity as the normal operating condition. Zimbabwe's 4G coverage reaches approximately 65% of the country, but actual signal reliability varies significantly by location, time, and weather. A payment platform that fails when signal drops is useless in this environment. ZiRA is designed to work reliably across the full range of network conditions found in Zimbabwe, from fibre in Harare CBD to intermittent GSM in rural Matabeleland.

USSD Integration

USSD (Unstructured Supplementary Service Data) is the backbone of mobile financial services in Zimbabwe. EcoCash, the dominant mobile money platform, operates primarily through USSD. ZiRA's USSD integration operates through local aggregators and mobile network operators, enabling text-menu-based interactions over basic GSM signal. A user dials a short code, navigates a series of menu options, and completes their transaction — sending money, checking a balance, confirming receipt — all without a smartphone, without an app store, without data connectivity.

Integration Capabilities

The platform supports wallet integration through mobile SDKs, merchant integration through APIs and QR systems, and partner integration for banking, mobile money, and payout connectivity. All integrations are subject to partner agreements and regulatory permission.

ZimX Finance is in development and not yet operational. This document is for informational purposes only and does not constitute an offer of securities, investment advice, or a guarantee of any outcome. All forward-looking statements are conditional on regulatory permission, audit completion, and operational readiness.