



QREDO LITEPAPER

Radical new infrastructure for digital
asset ownership and blockchain
interoperability



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**THE NETWORK
IS THE VAULT™**



PREFACE

A new approach is required to bring deep liquidity and capital efficiency to the custody of digital assets.

This approach calls for decentralization, interoperability and open networks.

DECENTRALIZED MPC-SECURED CUSTODY NETWORK

Featuring

CROSS-PLATFORM CREDIT & LIQUIDITY
CROSS-CHAIN ATOMIC SWAPS AND SETTLEMENT
GOVERNANCE AND COMPLIANCE
INSTITUTIONAL GRADE SECURITY & CONTROLS
INTEROPERABLE AND OPEN SOURCE



The future of global finance lies in the power of decentralized markets. Qredo's ambition is to advance decentralization and we are guided by this principle. We serve the pioneers and visionaries keen to participate in the next evolution of crypto capital markets.

Qredo has already launched its Version 1.0 decentralized custody protocol on a MainNet, delivering decentralized atomic swaps of Layer-1 digital assets without any counterparty risk. Development is underway on Version 2 of the protocol. Version 2 has significant improvements in security, scalability, and trustlessness, which we describe in this document.

Currently, our version 1.0 MainNet is deployed on six Validator nodes residing in geographically distributed Equinix data centers which include a multi-party computation (MPC) cluster that secures user deposit wallets and Layer-1 transactions. All MPC nodes reside in tamper-proof, hardware security modules (HSMs). This architecture delivers institutional-grade security on a low latency network that is infinitely scalable. We are currently onboarding corporate clients ready to experience a radical new way to secure, stake, and trade their assets. All actors on the network benefit from a unique Delegated Proof of Stake protocol with rebates on transaction fees.

As Qredo prepares to rollout Version 2.0 of the protocol, Qredo will begin onboarding independent third-party Validators, first for TestNet operations and eventually MainNet 2.0 launch. The community will eventually govern itself through a Decentralized Autonomous Organization (DAO) as we move towards a fully decentralized model.



INTRODUCTION

VISION

Qredo is rearchitecting digital asset ownership and blockchain connectivity for a multichain world; a radical new approach to bring liquidity and capital efficiency to the blockchain economy. Qredo has pioneered the first decentralized trustless MPC-secured custodial network that can accommodate financial institutions' governance and compliance flows. The result enables **decentralized custody, cross-chain atomic swaps, cross-chain credit facilities and liquidity access.**

OUR MISSION

Qredo works at the cutting edge of cybersecurity and blockchain. We've utilized the latest innovations in cryptography and distributed ledger technology to deliver a powerful global network for securing and trading digital assets.

Our mission is to build a decentralized infrastructure for pioneers and visionaries, creating an open network that works for everyone.



CHALLENGE

FRAGMENTED MARKETPLACE

The digital asset economy suffers from many structural problems unique to the industry that result in a lack of liquidity and impede financial market operations. Transaction confirmation times are extremely slow, resulting in all trading and credit activity requiring up to 100% locked-up capital; transaction fees are prohibitively high, and the industry suffers from widespread hacking and security vulnerabilities. Larger capital market players, keen to participate, cannot due to a lack of corporate-grade crypto-infrastructure with built-in audit trails, governance, and compliance to support cross-asset settlement and cross-platform liquidity.

Qredo solves all these problems.

POOR SECURITY

\$1.9B

IN DIGITAL ASSETS STOLEN OR HACKED IN 2020



Centralized private key management creates counterparty risk

OVER COLLATERALIZATION

100%+

IN COLLATERAL REQUIRED FOR PRE-FUNDING, LENDING AND BORROWING



Capital locked on multiple trading venues creates poor capital efficiency

NO CONTROL OVER ASSETS IN DEFI

\$500M

STOLEN FROM DEFI PROTOCOLS IN 2020



Funds lost in DeFi protocols due to insufficient controls over private keys, coupled with cumbersome processes

POOR INTEROPERABILITY CROSS-CHAIN/PLATFORM

~\$1300

THE DIFFERENCE IN BTC PRICE IN 2021 DUE TO THE "KIMCHI PREMIUM"



Liquidity is trapped across protocols & platforms with participants unable to take advantage of arbitrage opportunities

DELAYED SETTLEMENT

30MIN

AVERAGE CONFIRMATION TIME (3 CONFIRMATIONS)



Slow blockchain settlement and high network fees



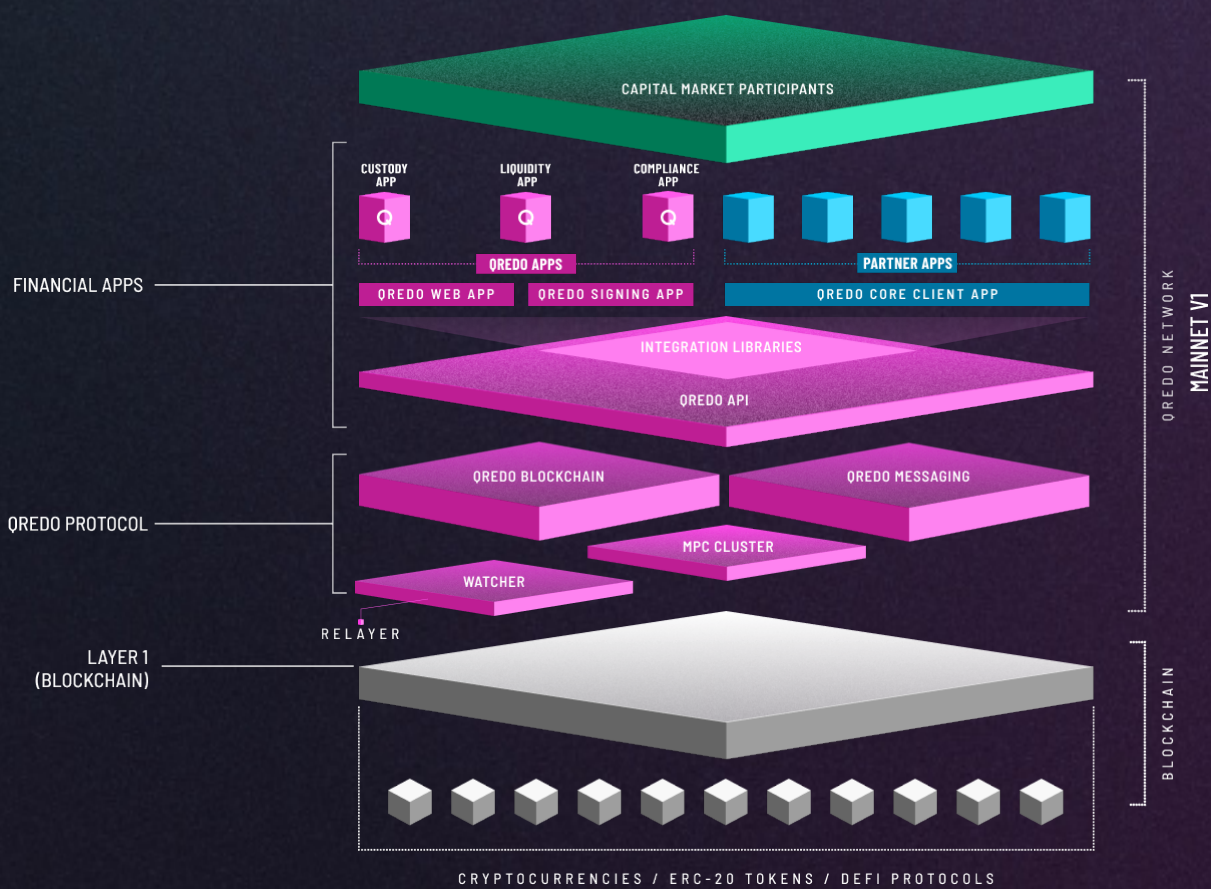
WHAT IS QREDO?

The Qredo protocol is a Layer 2 decentralized custodian protocol with compliance and governance controls built-in to its consensus mechanism. On top of the Layer 2 exists a Layer 3 decentralized communications plane that enables conversations to be replicated across all peers instantaneously, yet provides built-in end-to-end encryption for privacy and security. Conversations can be machine to machine, machine to humans, or human to human.

Qredo's philosophy is Layer 2 protocols reach their full potential if they utilize decentralized communication protocols, a Layer 3, as an independent layer to offload any extraneous communication. This is essential for any Layer 2 hoping to deliver performant solutions to traditional finance actors who want to engage with or develop their DeFi protocols.

The Qredo protocol makes use of multi-party computation to generate segregated deposit addresses and eliminate the risk of private key theft. MPC nodes sign transactions via a consensus-driven workflow which is secured without the need for centralized private key storage.

The protocol's design, from the consensus layer through to the digital asset and economic security design, is meant to deliver on the premise that the entire network is the vault, and eliminate all counterparty risks for liquidity providers, market makers, and traders alike. All deposits and holdings are mapped 1-to-1 to the underlying Layer 1 blockchain and visible through the Qredo block explorer.



QREDO NETWORK ARCHITECTURE



CORE TECHNOLOGY PILLARS

Fast Finality Blockchain

Qredo's Layer 2 is fast-finality blockchain tuned to handle thousands of transactions per second.

Qredo's Layer 2 records asset ownership across different layer 1 blockchains and within the liquidity network.

Consensus MPC Network

Consensus driven MPC Network eliminates digital asset theft.

Programmable governance and workflow with built-in security for institutional trading, as well as access to DeFi smart contracts with maximum security.

Encrypted Messaging

Qredo's Layer 3 enables its users to broadcast RFQs across its encrypted, decentralised messaging network and handle all pre-trade negotiation with ease.

Qredo Layer 3 supports FATF Travel Rule regulations by cryptographically binding messages and transactions.

Client and Partner API

Qredo Integration Libraries connect to Qredo Client APIs that enable market participants to integrate Qredo into their middle office and front office applications.

Partners can develop custom applications that integrate with the Qredo network and benefit from our flexible architecture and support for multiple use cases.





KEY FEATURES

DECENTRALIZED CUSTODY WITH CONTROLS

- Self-managed and third party custody
- Corporate authorization and hierarchy controls
- Multi-asset fund management
- DeFi Dashboard

DECENTRALIZED RFQ SYSTEM & CREDIT FACILITIES

- Cross-chain native atomic swaps
- Instant transfers
- Automated net settlement
- P2P/P2Pool trader chat
- Liquidity pool access
- Native cross-chain DEX connectivity

DECENTRALIZED COMPLIANCE

- Travel Rule compliance
- Automated & customizable reporting
- Immutable record keeping of transactions and messages
- Audited, verified and insured

AUDITED, VERIFIED & INSURED

Security Audited: NCC Group, Quantstamp.

Trail of Bits & Marsh McLennan (in progress)

Pen Tested: Zokyo

Peer Reviewed: Dr Michael Scott

Insured: Lloyds of London, Marsh



MARKET POSITION

QREDO VERSUS MARKET PLAYERS

Qredo offers the best cross-chain interoperability and secure decentralized custody of any solution on the market today.

There are several players running MPC technology but Qredo's MPC is currently the world's only consensus-driven MPC.

QREDO'S USP

Through its unique approach, Qredo offers three distinct advantages:

1) Security of Decentralization

Qredo's protocol declares asset ownership rights on a decentralized ledger vs. storing them in a centralized database. Consensus-driven MPC network eliminates the risk of private key theft.

2) Cross-Chain Interoperability

Supports the growth of cross-chain crypto markets with frictionless cross-chain atomic swaps and cross-chain credit facilities.

3) Automated Trading and Execution Security

Qredo has built in privacy and security protocols that ensure no counterparty on the Qredo network knows your strategy and your transactions are immune from front-running, MEV disruption and other nefarious activities.

CROSS-CHAIN
PROTOCOLS



THORCHAIN



REN



KEEP



COPPER



CURV



FIREBLOCKS

MPC TECH
CUSTODIAN
SERVICES



HISTORY





LEADERSHIP TEAM



ANTHONY FOY
CEO

Digital veteran and serial entrepreneur. 20+ years experience in VC-backed growth companies. 4 successful exits.



BRIAN SPECTOR
CPTO

Cyber Security expert and serial entrepreneur 20+years' experience specialising in advanced cryptography; 5 patents + 3 pending.



JOSH GOODBODY
COO

Operational leader scaling the world's largest cryptocurrency exchanges (Binance, Huobi Global) 15+ years experience, previously financial markets lawyer.



DUNCAN PAYNE-SHELLY
CFO

Seasoned commercial leader of high growth companies. 20+ years experience including Big4 FCA with 13 years M&A. 10 years tech/fintech.



BEN WHITBY
REGULATORY AFFAIRS

Compliance tech leader. Specialist in Capital Markets, MiFID, Dodd Frank. Developed world's first Interest Rate Swap trading platform in 2001
Crypto advocate since 2013.

ROADMAP



DIGITAL ASSETS

PLATFORM & FEATURES

DONE LIVE NOW

LARGE CAP

NATIVE

 Bitcoin	BTC
 Ether	ETH

STABLECOINS

 Tether	USDT
 USD coin	USDC

TOP 20

ERC-20 TOKENS

CORE LAYER 2

- ✓ Layer 2 trading and settlement
- ✓ Decentralized custody
- ✓ Enterprise-grade crypto wallets
- ✓ Cross-chain swaps & Liquidity Hub

IN PROGRESS H2 2021

MID CAP

NATIVE

 Algorand	ALGO
 Solana	SOL
 Binance Smart Chain	BSC
 Polkadot	DOT

TOP 60

ERC-20 TOKENS



LAYER 3

- ||| Trader Chat
- ||| Travel Rule Compliance
- ||| DeFi Hub

PLANNED H1 2022

SMALL-MID CAP

NATIVE

 Cardano	ADA
 Stella	XLM

TOP 100

ERC-20 TOKENS

MARKET ADD-ONS

- 📅 Click-to-cover insurance
- 📅 Crypto money markets



PATH TO DECENTRALIZATION

At present, Qredo has deployed Version 1 Mainnet where Qredo Ltd is the sole operator of a decentralized architecture. Qredo's validators are hosted in six data centres across the globe, operating Validator Nodes across a low latency network. In the second half of 2021, Qredo will move into a federated model, under its Version 2 protocol Testnet, where a curated set of third party Validators will start operating Validator Nodes. On completion of this phase in early 2022, the number of third party Validators will increase towards a fully decentralized model, assuming all operational tests and security review findings are low to informational.

The Qredo protocol and code will not be owned by any single party. The Qredo Network is a community and will leverage the best-in-class operations for decentralized autonomous organisations (DAOs). The Qredo Network itself will be secured by an open, distributed network of Qredo Validators that operate multi-party computation (MPC) protocols to protect deposits, govern the market activity of participants, validate transactions and vote on new blocks.

The Qredo DAO will operate independently of a central authority. Instead, the group will make decisions collectively where a QRDO token counts for one vote. Typically improvement proposals are selected for voting if they have gained enough support to go to a wider vote. Voting takes place via smart contracts deployed on the Ethereum blockchain. A DAO's smart contract defines the rules of the organisation and holds the group's treasury. Once the contract is live on Ethereum, no one can change the rules except by a vote. Qredo has developed these smart contracts and is currently in a security audit process. Identified issues will be fixed and, bearing no issues with a second audit, the contracts will be released.



NOW

CENTRALIZED

H2

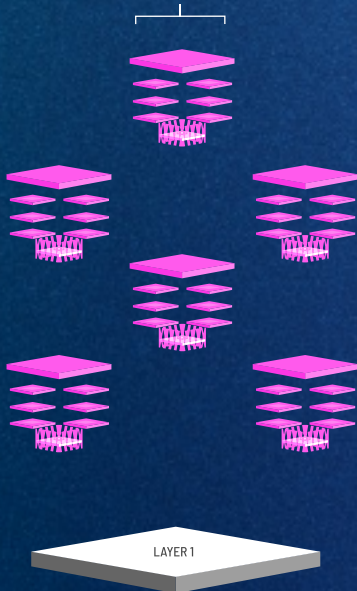
FEDERATED

2022

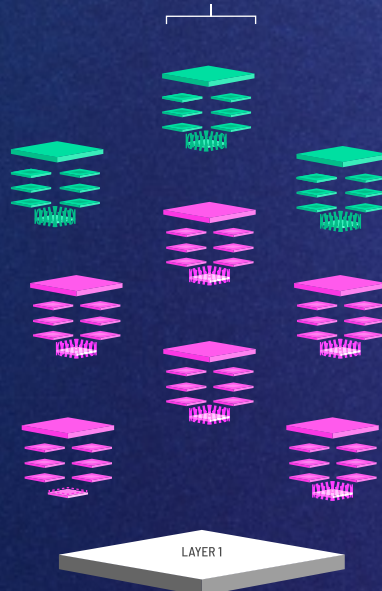
DECENTRALIZED

OREDO RUNS 6
DATACENTERS
GLOBALLY

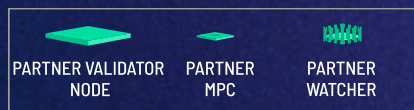
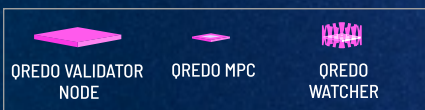
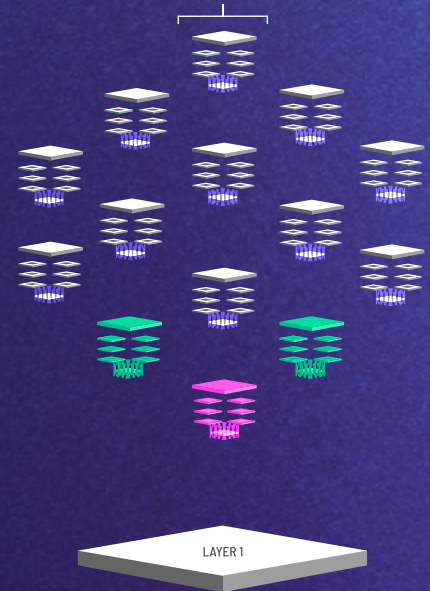
Each Datacenter has:
• 1 Validator Node
• 6 MPC Clusters
• 1 Watcher



PARTNER VALIDATOR



INDEPENDENT VALIDATOR



TOKENOMICS

QRDO is a utility and governance token for the Qredo Network.

We've designed a "user-centric" incentive structure that economically favors all network participants to build network effects and drive adoption. As such, the design takes into consideration the incentives required for each participant; including validators, liquidity providers, traders and custody users.

USER-CENTRIC REWARDS

TRANSACTION MINING

Up to 100% QRDO rebates per transaction to incentivize usage of the Qredo Network

CUSTODY MINING

Inflation-based mechanism rewards users for holding assets within the network

VALIDATOR REWARDS

High reward model, derived from transaction and custodial fees - payable in QRDO tokens

LIQUIDITY MINING

Liquidity providers pay no fees, and are rewarded in L1 and QRDO tokens for the provision of liquidity



USE CASES

Strong market desire for decentralized custody with corporate controls has inspired us to design the network to support a number of state-of-the-art crypto trading applications:

- **Decentralized custody**, self-managed and third party custody with corporate controls and multi-user access.
- **Trader Chat**, a peer-to-peer encrypted OTC messaging app for pre-trade negotiation, RFQ, and clearing using Qredo's Layer 3 which enables transaction privacy and message non-repudiation.
- **Treasury services** such as platform plug-ins for native accounting software.
- **Cross-chain credit facilities** enables highest possible margin attainment for cross-chain arbitrage or cross-chain yield farming strategies.
- **Counterparty wallets** allow trading on CEX & DeFi direct from self-custody, enabling traders to pool funds and eliminate pre-funding.
- **DeFi Hub**, cross-chain DeFi smart contract protocols.
- **Liquidity Hub**, extending existing multi-dealer P2P dark pool, with full auditable transaction history.
- **Relayer** functionality to pay third-parties for broker-type use cases such as quoting.
- **Click-to-cover insurance**, integrated product provides flexible, tailored insurance that can scale to a level your business requires.
- **Travel Rule Compliance**, a compliance tool, utilizing Qredo Network to accept and reject transactions and verify counterparties whilst fully interoperable with third-party compliance systems.

DECENTRALIZED
CUSTODY

TRADER CHAT

TREASURY
SERVICES

CROSS-CHAIN
CREDIT

COUNTERPARTY
WALLETS

DEFI HUB

LIQUIDITY HUB

RELAYER

TRAVEL RULE
COMPLIANCE

CLICK-TO-COVER
INSURANCE



TESTIMONIALS

"We are excited to see Qredo bring better speed, security and compliance into DeFi and provide a new way for institutions to interact with crypto"



ALEX MASHINSKY,
CEO
Celsius Network

"We look forward to seeing Qredo build out streamlined custodial services... we are closer than ever to professionalizing DeFi and evolving financial services fit for Web 3.0"



JOHN JANSEN,
CEO
Deribit

"Qredo provides a more efficient way for institutions to manage and swap their native assets – with seamless access to DeFi opportunities wherever they exist."



JOE DETOMMASO
Investment Portfolio
Manager,
CMS Holdings Network

"We invested in Qredo because its radical new infrastructure is aligned with our own goal of making crypto trading and investment easier, fairer, and more efficient for everyone."



JACK TAN
Co-Ceo and Co-Founder,
Kronos Research Network

"Qredo's decentralized infrastructure will fast become an essential part of the digital asset ecosystem for institutions holding and trading crypto"



CRISTIAN GILLOMASO
Co-Founder,
GSR

"Qredo is part of crypto's evolution; a building out infrastructure that is fit for institutions and the wider transition of digital assets to the mainstream."



MILES PERRY
Head of Custody,
Genesis



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IS THE VAULT™**