



**PECUNI**



**SYMMETRIC**

# **WHITE PAPER**

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# LEGAL DISCLAIMER

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The information, forecasts, and assumptions presented in this document are intended solely for GENERAL INFORMATION purposes. It is important to note that the details retained herein should not be construed as financial or legal advice. This document is not a solicitation of investment and does not establish or endorse any contractual obligations. If you have any questions or uncertainties, we strongly recommend seeking guidance from a qualified attorney, accountant, or any trusted fiduciary of your choice.

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Purchase of Proto-Pecuni utility tokens conveys no voting or ownership rights, or shares of profit for any associated entity.

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# EXECUTIVE SUMMARY

In recent years, the rise of blockchain technology has transformed various sectors of the digital economy, offering unprecedented levels of security and decentralization. At the core of this technological advancement lies asymmetric encryption, a fundamental mechanism that secures communications and financial transactions essential for the functioning of the modern internet.

However, the advent of quantum computing poses a significant threat to asymmetric encryption. Quantum computers have the capability to break asymmetric encryption by swiftly evaluating all potential solutions to specific mathematical problems, jeopardizing the security of online transactions and communications. This looming "Quantumpocalypse" (or Q-Day) threatens not only the financial and communication sphere but also critical physical systems like nuclear power plants and drones, which rely on encryption.

In response to this imminent danger, Will Ragan developed Quantum Lock®, a patented encryption system designed to withstand quantum threats. Quantum Lock, will not only safeguard the digital economy in the future, but will work over existing Internet hardware. Users will simply need updated software, and will need to receive a USB drive in the mail at least once to use the system.

Three additional patents were granted to Ragan for the invention of a post-quantum blockchain system. This new blockchain, Symmetric®, not only provides Shannon secure transactions, but reimagines blockchain from the ground up – adding new strength and robustness. A fifth patent for post-quantum homomorphic encryption was additionally granted, paving the way for a new class of cloud-based applications that preserve privacy. Many additional non-published innovations to the core cryptography, blockchain dynamics, and homomorphic system are pending – and will be available for use in the future.

The security of Quantum Lock and Symmetric, differs from "quantum-resistant" protocols in that they can never be maliciously decrypted – regardless of advances in computing or mathematics. Attempting to use more complex algorithms such as lattice cryptography, only delays the inevitable – and exposes current data to decryption in the near future.

All patents, trademarks, and other intellectual property are currently owned by General Cryptography Inc, a United States C Corporation. Symmetric Holdings Inc, a British Virgin Islands corporation, has licensed rights to all relevant intellectual property, and is building out the Symmetric blockchain. This global blockchain system will utilize a Turing complete language similar to Solidity, and will offer significant flexibility in the way verifier nodes interact. The native token of the blockchain will be the Pecuni®. The development of the new Symmetric blockchain will be funded through the launch of a utility token, the Proto-Pecuni (PROTOP).

Once fully functioning, Symmetric will offer a conversion service to allow existing NFTs (secured through obsolete asymmetric protocols) to be moved – providing permanent security and persistence of ownership. Private blockchain networks will then be allowed to convert over, using a suite of tools that will allow retention of existing features and customization of the underlying Symmetric blockchain layer. Finally, cryptocurrencies will be invited to convert. A rich ecosystem already exists with many models for inflation, staking, consensus, and a plethora of applications. It is not Symmetric's goal to supplant the incredible progress that has already been made, but to provide a permanent open-source foundation for these innovations to continue to exist and flourish.

Once the Symmetric blockchain is functional and fully tested – holders of PROTOP will be able to exchange their tokens 1 to 1 for Pecuni, with an identical new token supply. The Pecuni will serve as the native token (or gas) for all public and private blockchains and applications built on Symmetric. Additionally, it will be used to purchase Quantum Lock services for communication, Internet browsing, and non-blockchain financial transactions. During the development and conversion phase (potentially around five years), the Pecuni may experience radical valuation increases matching the broad use cases. Following this period, a minting protocol will be adopted that seeks a zero rate of inflation – allowing the Pecuni to serve as an ideal store of value and medium of exchange.

At this time, there are no alternatives to Symmetric. Barring a new advance in mathematics, it will be the only blockchain left after the Quantumocalypse. Through the initial coin offering, users will have the opportunity to participate in the transformation of the digital economy – ushering in a new era of secure and decentralized digital transactions.

# THE QUANTUM COMPUTING THREAT TO BLOCKCHAIN

The advent of asymmetric encryption marked a significant milestone in the space of digital transactions, offering unparalleled security through cryptographic techniques like public/private key pairs. Blockchain systems, including popular cryptocurrencies like Bitcoin and Ethereum, also rely on asymmetric encryption to safeguard transactions and ensure the integrity of distributed ledgers. However, the emergence of quantum computers poses a looming threat to the security of asymmetric encryption.

Quantum computers possess the capability to solve complex mathematical problems exponentially faster than traditional computers. To oversimplify - in a quantum computer, all possible solutions to a problem can be placed in quantum "superposition". The correct answer is made to be energetically favorable relative to incorrect answers. When the superposition collapses, only the correct answer remains. This advancement threatens the foundation of asymmetric encryption, as quantum computers can potentially decrypt data encrypted using asymmetric algorithms, rendering current cryptographic protocols obsolete. The implications extend far beyond financial transactions, impacting critical infrastructure and communication systems that rely on encryption for security.

In recent months, the world has seen an extraordinary rise in digital security breaches. These could be the result of "traditional" hacking techniques, or possibly early signs that rogue actors have access to strong quantum computing capabilities. Examples include:

- ▶ Frequent data breaches at major companies with significant IT capabilities
- ▶ Widespread and prolonged cell network outages
- ▶ Hacking of medical and pharmaceutical networks
- ▶ Simultaneous loss of control of numerous weather radar stations
- ▶ Hacking of air traffic control systems
- ▶ Hacking of crypto wallets and exchanges
- ▶ Frequent outages of 911 systems

As quantum computing abilities outpace asymmetric key lengths, hacking of Secure Socket Layer (SSL) connections, digital certificates, email, crypto wallets, bank accounts, and account passwords will occur. Depending on the motivations of parties involved, the events of the Quantumocalypse could include:

- ▶ Impersonation of email and website data due to certificate breach
- ▶ Fake messages posted on real social media accounts
- ▶ Theft of data from cloud based storage systems
- ▶ Breach of traditional bank accounts
- ▶ Corruption of blockchain ledgers
- ▶ Manipulation of stock exchanges
- ▶ Shut down of power, cell phone, and internet grids
- ▶ Remote takeover of self-driving cars, aircraft, and commercial drones
- ▶ Loss of control of military vehicles and weaponry, including nuclear arsenals

# SYMMETRIC TECHNOLOGY

In response to the threat posed by quantum computers, Will Ragan embarked on a mission to develop a solution both in encrypted communications and in blockchain. After examining the different types of quantum computer systems, he recognized that all forms of asymmetric encryption would eventually be breached – no matter how complicated. This insight was not widely accepted until recently, and helped establish a path towards the solution.

Symmetric blockchain technology solves the problem posed by quantum supremacy by replacing current asymmetric encryption protocols with symmetric encryption that is permanently unbreakable. The foundation for these innovations is based on the groundbreaking work of Claude Shannon, the father of information theory. Shannon's work in encryption helped Allied forces defeat the Axis Powers in WWII, and has provided a modern framework for understanding cryptography.

All users of the Symmetric blockchain will utilize the Shannon secure communication service Quantum Lock. Prior to using the system, a user will physically receive a storage device (such as a USB) that contains quantum random symmetric ciphers. These devices will be mailed from secure hub locations around the world. Once this data has been received, along with open source software, users will be able to communicate with any other user in the world with total security – without having to make physical contact with other users. Quantum Lock users will eventually be able to browse the Internet, send email, or engage in financial transactions with the system, in addition to using the Symmetric blockchain.

Due to the system's patented architecture, Quantum Lock hubs will facilitate communication between users without having access to messages. Blockchain keys will be created at the user end (as in traditional blockchain), and QL hubs will not have access to these either. A detailed description of the system is described in the granted patent documents. After new patents are published, a more advanced symmetric cipher system may replace the initial format. This protocol will continue to be Shannon secure, but will have additional advantages. Eventually, the open architecture may allow many different companies around the world to operate hubs using the same post-quantum protocols.



Since Symmetric blockchain verifier nodes and users will all use Quantum Lock for communication, it is mathematically impossible to intercept sensitive data as it is in transit. Additionally, the core structure of Symmetric has been converted to a permanently unbreakable encryption, protecting block integrity. With asymmetric encryption, no matter how complicated an algorithm is – the private keys can be derived from the public keys by a sufficiently powerful quantum computer. In Symmetric blockchains, no amount of brute force computation or quantum computing qubits will decrypt private keys held by block owners.

In addition to implementing post-quantum cryptography into blockchain, Symmetric will go beyond this to fortify general aspects in the way verifiers, blocks, and users are linked together. In Symmetric, sub groups of verifiers can be assigned to specific blocks. This dramatically improves global processing speed for transactions. Verifiers can also be aligned into chains that represent the interests of different parties with a stake in a block. This mirrors well established legal systems worldwide. When a blockchain converts over to Symmetric, the specific parameters for how verifiers, users, and blocks in the ledger interact – will be configurable based on the application. Some of the patented innovations in Symmetric focus on anti-collusion mechanisms, that make it extremely difficult for verifiers to engage in fraud.

Blocks in Symmetric will be linked together by symmetric encryption algorithms that require possession of authentic private keys. Verifiers for a specific block will hold unique keys with other verifiers and with the owner of a block (for example holding an asset title or a unit of cryptocurrency). These keys may be changed periodically as well as each time an authentication query is made. This prevents malicious actors from guessing a private key by simply presenting random number strings over and over. No single verifier will hold all the keys necessary to authenticate the owner of a block, or mint the next block – this prevents a rogue verifier from stealing ownership, modifying ledger data, or creating new cryptocurrency. Verifiers for a block may be linked together cryptographically with verifiers for prior blocks, adding broader strength to the security of the system. Anonymization systems built into Symmetric will allow for verifiers to hold keys without knowing what block they are for. The data within a block can also be encrypted in the public ledger, with decryption keys held by secret verifiers. These examples provide a sample of the robust features available in Symmetric.

Verifier nodes in Symmetric blockchains will carry out a combination of four tasks: storage, authentication, routing, and computation. They will be paid for these services in the native token (or gas) of the network – the Pecuni. Nodes will have an option to store all or portions of the blockchain ledger, providing the mass redundancy and decentralization expected of traditional blockchains. Authentication of existing block owners, and minting of new blocks will also be carried out by nodes. Nodes may also be involved in routing and transmission of data to end users. A Turing complete language similar to Solidity will allow nodes to carry out computational tasks on block data.

The smart contract language will eventually contain patented tools for performing computation on encrypted data. This relatively new branch of mathematics is called homomorphic encryption. Symmetric tech already includes tools from one granted patent, with significant additional enhancements to be published shortly. Homomorphic encryption will enable a new class of privacy-based applications. Symmetric nodes will be able to perform computations on encrypted data and return an encrypted result – without ever seeing the raw data or the result. An example of this might be converting a list of bank transactions into an accounting ledger format. Additionally, proprietary algorithms for performing the computation can be provided by a third party to a node – allowing an algorithm provider to maintain the privacy of their system, while the processed data remains private, and the node is unable to see the algorithm or the data. A proprietary AI system operating on personal medical data looking for factors contributing to disease, would benefit from this three way anonymization.

Suppose that a consumer wants to receive driving directions without revealing their location. A mapping app developer provides the directions without revealing their proprietary algorithms or map database. The app developer and consumer establish a secret algorithm which governs a three-way encryption protocol. The driver's location and destination are encrypted, broken into small pieces, and scrambled before being sent to a group of homomorphic computation nodes. The app developer similarly takes their algorithm (combined with data), breaks it up into logic commands for parallel and sequential computation, and sends encrypted versions of the commands to the group of nodes. The nodes perform the encrypted commands on the encrypted data (without gaining any knowledge), and send the result back to the driver who uses the secret protocol to decrypt the directions and complete their journey.

Current homomorphic encryption systems are susceptible to quantum computers, use vast amounts of computing power, and do not fully hide third party algorithms. Symmetric's anonymized computation system will offer profound privacy benefits in consumer data mining as well as in the medical, financial, and scientific realms.

# Symmetric Comparison

## SIMILARITIES BETWEEN SYMMETRIC BLOCKCHAIN AND TRADITIONAL BLOCKCHAINS:

- ▶ Utilize a distributed ledger for massive redundancy
- ▶ Verification of transactions is performed on a decentralized network
- ▶ Speed, efficiency, and audit trails
- ▶ Offer distributed computation
- ▶ Can provide “smart contracts” with a Turing complete programming language
- ▶ Help prevent fraud, corruption, and breach of contract
- ▶ Facilitate varying levels of privacy and transparency in information and transactions
- ▶ Inherently global and borderless
- ▶ Enable freedom of speech and financial mobility

## DISADVANTAGE OF SYMMETRIC OVER EXISTING BLOCKCHAINS:

- ▶ All users of the blockchain must physically receive a USB storage device containing symmetric ciphers prior to use

## ADVANTAGES OF SYMMETRIC OVER EXISTING BLOCKCHAINS:

- ▶ Is mathematically impossible to ever decrypt by any current or future advance in computing or mathematics
- ▶ All communication between users and blockchain nodes use unbreakable post-quantum cryptography
- ▶ Ability to have verifier node groupings represent the interests of different parties, incorporating a time-tested legal paradigm into the world of blockchain
- ▶ Significant innovation and options in the way verifiers interact to store and authenticate the blockchain, creating strong anti-collusion and bribery deterrents
- ▶ Built-in post-quantum homomorphic encryption allows verifier nodes to perform computations with data from party A, using an algorithm from party B – without seeing the unencrypted data or algorithm – and without Party A or B seeing the other’s parties data or algorithm
- ▶ Symmetric/Quantum Lock tech will permanently solve the problem of IP spoofing, and will additionally secure digital certificates and SSL connections

# OUR VISION AND MISSION

Symmetric envisions the transformation of digital communication, financial transactions, and blockchain with post-quantum cryptography. It is time to stop running from the inevitable supremacy of quantum computing, via incremental increases in key length or algorithmic complexity.

We see a future where homomorphic encryption enables a new class of privacy-based cloud applications. Data owners should be able to control how their information is viewed, and still enjoy the benefits of distributed computing and data mining services. We believe in decentralization, democratization, and open source transparency. We believe privacy and participation in the global economy are fundamental rights, not privileges to be brokered by those with control of quantum computing assets. We believe the digital world should enhance physical reality, not distort it through false representations made possible by hacking digital certificates.

Our mission is four-fold:

- ▶ Create a permanent foundation for the digital ecosystem based on unbreakable cryptography
- ▶ Preserve existing innovation by converting as many NFT's, blockchains, and cryptos as possible, before they collapse in the Quantumocalypse
- ▶ Revolutionize privacy and decentralized computation with homomorphic encryption
- ▶ Defend authenticated reality in the virtual realm by securing digital certificates

We believe this is the foundation for **WEB4**.

# TOKENOMICS

The native token of the Symmetric blockchain will be the Pecuni, which is related to the Latin word for money. A utility token, the Proto-Pecuni, will be used to raise funding for the development of Symmetric. The PROTOP will be a Polygon (Matic) based token issued from a proprietary launch pad site – [www.pecuni.io](http://www.pecuni.io). PROTOP will have a total permanent supply of 144M tokens, with 18 decimals of fractionalization available.

10% of the token supply will be offered during the first round of Initial Coin Offering (ICO), at a tentative price of \$0.50 USD. Funding will be held in escrow wallets until \$150k USD has been raised – enough to achieve some basic programming milestones and then launch a second ICO round. During the escrow phase, participants may withdraw their funds at any time less a \$3 plus 3% processing fee. If the escrow threshold is not met within 60 days of launch – the ICO will end and funds can be claimed (less fees).

Following the first round, PROTOP listings will be sought on both centralized and decentralized exchanges – allowing the price to float with the market. During the subsequent ICO rounds, the launchpad may offer the next group of tokens (from the Public Sale allotment) at a slightly lower price than the market rate. This will facilitate rapid funding for the next round of development. Ample notice will be given before each round, so that existing token holders will be aware of the upcoming dynamics. It is expected that the price of the token will experience radical increases between rounds as more milestones are reached.

Late in the development, PROTOP will be exchanged 1 to 1 for Pecuni. All subsequent sales and trades will be done on a Symmetric based launchpad or exchange. The tokenomics of PROTOP will carry over to Pecuni, and no new tokens will be minted as the development is completed. This will reward early adoptors. After the network is fully developed and existing NFTs, blockchains, and cryptocurrencies have had an opportunity to onboard – a permanent Pecuni minting system and verifier node reward system will be implemented. This protocol will seek a zero percent rate of inflation, shifting the Pecuni from an appreciating asset to a stable store of value. This will ultimately serve to maximize value. Eventually, verifier nodes will likely be asked to stake Pecuni as collateral. 8% of verifier gas fees will go to General Cryptography for licensing and development, ensuring ongoing system development and maintenance. The staking and licensing will further increase token valuation. A transition to a Decentralized Autonomous Organization (DAO) will also be evaluated. This would give voting rights to token holders and verifiers, and create a solid long-term governance structure.

# Token Allocation

## **a) Public Sale Allocation (60%)**

Divided into six rounds of 10% each, the public sale allocation aims to democratize access to PROTOP tokens, ensuring widespread distribution among buyers.

## **b) Founder Allocation (18%)**

With an 18% allocation, founders will adhere to a vesting schedule, releasing 1% of tokens monthly after the first year. This strategy incentivizes long-term commitment and aligns the founder's interests with the project's success.

## **c) Team Allocation (5%)**

A 5% allocation is designated for the Symmetric team, acknowledging their contributions to project development and fostering ongoing commitment to its growth and success.

## **d) Advisors and Partners Allocation (4%)**

Symmetric allocates 4% of tokens to advisors and strategic partners, recognizing their invaluable guidance and support in navigating complex challenges and accelerating project growth.

## **e) Reserve Fund Allocation (7%)**

A reserve fund of 7% ensures liquidity and stability within the ecosystem, serving as a strategic asset reserve to support future initiatives and mitigate potential market volatility.

## **f) Community, Rewards, and Marketing Allocation (6%)**

6% of tokens are allocated to community engagement, rewards programs, and marketing initiatives. This allocation aims to foster community engagement, and drive awareness and adoption of the Symmetric ecosystem. A limited token presale may be run from this allotment to bolster marketing during the ICO.

Through strategic allocation and distribution, the Pecuni/Proto-Pecuni's tokenomics structure is designed to align interests, incentivize long-term engagement, and support sustainable growth through hard work and ingenuity.

# MARKET OPPORTUNITY

Converting asymmetric encryption systems to Symmetric technology creates a strong financial opportunity for holders of PROTOP/Pecuni tokens, due to multiple factors. The first comes directly from adoption of the blockchain, which will increase demand for the token.

More than 23,000 cryptocurrencies have been created, with a total value of nearly 3 trillion US dollars. It is estimated that over 40% of publicly traded companies use some form of blockchain technology. Despite, the vast number of cryptocurrencies and blockchain platforms, only a tiny group have made an attempt to prepare for the threat posed by quantum computers. The efforts to date have focused on more complicated asymmetric encryption algorithms, or replacing pseudo random keys with quantum random keys. While these measures may slightly delay the obsolescence of traditional blockchain, no fully post-quantum system has been implemented. Symmetric will be the first. As quantum supremacy nears, owners of NFT's, corporate blockchains, and asymmetric cryptocurrencies will be forced to convert to avoid hacking and theft.

The second opportunity for PROTOP/Pecuni holders comes from the vast use case for Quantum Lock services outside the blockchain world. Since the Pecuni will be used to purchase Quantum Lock services (at a slight discount over fiat), demand for the base encryption service will drive up token prices. Some statistics and projections regarding the market size for Quantum Lock include:

- ▶ There are over 15B Internet connected devices, projected to 29B in 2030
- ▶ There are currently 5.35B Internet users – 66% of the global population
- ▶ 147 zettabytes (8 with 21 zeros after it) of data is expected to be generated on the Internet in 2024
- ▶ 99% of Internet browsing is now encrypted
- ▶ 31% of Internet users have VPN's, with half subscribing to paid services

Verifier nodes will likely be required to stake tokens, which will provide additional price support. Anticipation of the zero-inflation minting system that will eventually be implemented, will also be a strong driver of demand during the developmental phase. It is reasonable to compare the use cases for the Pecuni with that of Ether, both serving as native tokens for many blockchains and cryptos – and thus reasonable to project a potentially similar market valuation as the project matures.

# Team, Advisors, and Partners

## William Perry Ragan, Founder

Will Ragan is an accomplished American inventor, entrepreneur, and public speaker. He holds an MBA as well as a degree in Physics with a minor in Mathematics. He has managed diverse business activities across multiple industries, both private and non-profit. His career has provided experience in capital formation, mergers and acquisitions, and systems integration. Will is known for his ability to innovate a venture to achieve maximum potential.

In the 1990's Will designed a leading Internet technology for protecting families from inappropriate content. His company, Armor Communications, was the first US company to implement server-side filtering on a national level – with over 300 dial-up points of presence. He was featured in an issue of a Focus on the Family magazine for his efforts.

In the 2000's, Will designed a monitoring system to protect consumers from high cell phone overage bills. His company, MinuteWatch, was cited in US Congressional testimony; leading to protections for American consumers from excessive billing charges.

Will joined the international management team of a global non-profit organization that spanned 200 nations and had over 270,000 volunteer workers. He was responsible for significant cost reductions, as well as innovations in balanced scorecard reporting systems, fund raising, and recruiting techniques. Will has lived on three continents and visited 20 nations, giving him a broad appreciation for cultures around the world.

He holds numerous pending and approved patents in post-quantum cryptography, blockchain, and data anonymization. His current efforts are focused on implementing his patented intellectual property to protect consumer privacy and security in the digital economy.

## Jack Ragan, Technical Consultant

Jack Ragan is the son of Symmetric founder Will Ragan. He is a named co-inventor on multiple granted US patents. Jack was instrumental in analyzing the post-quantum blockchain system for potential security flaws and developing many of the invention variations that were granted full patent protection. He has a unique ability to view a problem's components in ways that would not normally be examined.



Jack is the inventor of Relativity Constrained Key Distribution, a patent pending method of post-quantum cryptography. RCKD has the potential to replace Quantum Key Distribution (QKD) in the future as a preferred encryption method for point to point (non-routed) transmission. Jack has many additional non-published inventions in various levels of development. He is completing a degree in Business Administration.

## **Ralph Rennoldson, Advisor**

Ralph Rennoldson is a seasoned crypto investor with over 8 years of industry experience. Known for finding special opportunities, he has analysed over 1,000 whitepapers. His understanding of market dynamics has laid the foundation for his success. Ralph has invested in over 100 cryptocurrencies, including many in the Initial Coin Offering stage.

## **Mohit Sirohi, Advisor**

Mohit is a veteran in the global blockchain industry and is currently serving as an advisor for Symmetric. He is also the founder and CEO of Vegavid Technology. An alumnus of the prestigious Indian Institute of Technology (IIT Bombay), Mohit possesses extensive expertise in implementing machine learning, constructing scalable distributed systems, and utilizing cloud and blockchain technologies. His international experience as a digital transformation consultant has equipped him with profound strategic and operational knowledge, rendering him a highly sought-after technologist, director, consultant, and advisor.

## **Naveen Kumar, Advisor**

Naveen serves as a member of the advisory board at Symmetric and holds the position of CTO at Vegavid Technology. With a background spanning finance and eCommerce, he brings valuable expertise to these roles. His focus in recent years has been on blockchain, digital assets, and cryptocurrency, where he has developed a strong skill set and played key roles in numerous successful projects. Prior to this, Naveen held the position of Vice President (Technology) at Morgan Stanley, a prominent investment bank on Wall Street. With more than fifteen years of demonstrated experience, he specializes in designing and developing sophisticated enterprise-grade applications.

## **CredShields, Security Partner**

Credshields is a web3 security company building next-gen tools for blockchain security. They also provide manual auditing services for smart contracts and blockchain infrastructure. The company has completed over 150 security assessment audits for a wide range of applications.

## **General Cryptography, Intellectual Property Partner**

General Cryptography is an emerging leader in post-quantum cryptography, blockchain, and homomorphic encryption. The company has an impressive intellectual property portfolio including five granted US patents. GC is in a technology licensing partnership with Symmetric – the world’s first fully Shannon secure post-quantum blockchain.

## **BlockChain App Factory, ICO Development Partner**

Blockchain App Factory is a leading enterprise blockchain technology solution and services provider company. Blockchain App Factory has built a legacy by providing cutting-edge solutions to clients across the globe, in all business spectra, looking to optimize for the web3 revolution. Their experience with blockchains enables them to provide custom blockchain solutions for applications in many industries.

## **Lyudmil Petrov, IT Security Specialist**

Lyudmil is a seasoned software and web developer with expertise in .NET Core/C#, Angular, React, SQL servers, and cloud technologies such as Azure and AWS. His career has been marked by designing, developing, and optimizing complex software systems, particularly in transforming legacy systems into advanced web-based solutions. He has collaborated with several notable organizations including the City of Mountain View CA, Pathway Health Corp, Severn Trent Services, and TriNet.

## **Andrii Oreshko, Smart Contract Language Lead**

Andrii is known as an innovative blockchain developer with extensive experience in designing and deploying cutting edge decentralized applications, including a DeFi platform that secured \$5M in assets within three months of launch. He holds a degree in Computer Science from Odessa National Mecnikov University. Andrii has extensive knowledge of smart contracts, consensus algorithms, and data structures; as well as a mastery of multiple languages including Solidity and Python.

## **Pavlo Horiienko, Cryptography Programming Lead**

During Pavlo's career, he has contributed significantly to the design and implementation of various blockchain applications, including smart contracts, decentralized applications, and cryptocurrency wallets. He has extensive experience with various blockchain platforms such as Ethereum, Solana, Hyperledger Fabric, and Corda. Pavlo has a deep understanding of cryptography and consensus algorithms, as well as programming language proficiency in Solidity, Java, and Python. His impressive resume includes work in Defi and DAO systems development.

## **Alex Filippov, Software Design Lead**

Alex holds a Bachelors degree in Physics, as well as a Masters in Artificial Intelligence. He has over 20 years of IT experience, with mastery of numerous programming languages. His diverse portfolio includes projects in video compression, Fintech, smart contracts, telecom, load balancing, and technical documentation. He has served large clients including Ericcson, Dell, Disney, and Apple. His multi-disciplinary background has enabled him to think out of the box on difficult problems.

## **Dmytro Hapon, User Software Lead**

Dmytro has over 10 years of experience in web app development including ecommerce and corporate websites. He has over 5 years of blockchain experience with a broad portfolio including Defi, NFTs, and gaming. He has numerous skillsets including Laravel, Django, HardHat, JavaScript, Python, and Solidity.

## **Milos Milic, Database Design**

Milos has broad knowledge across many IT areas. He is an expert in C#, C/C++, Python, and Java. His database expertise includes SQL, MongoDB, and DynamoDB. On the web side, he is fluent in HTML/CSS, Django, and Node.js. Milos's blockchain skills include Solidity, Ethereum, and Polygon.

## **Aqdas Malik, Blockchain Architect**

Aqdas has an exceptional background directing software development projects for major companies. He holds a bachelors degree in Computer Science, and has expertise in many languages and platforms including Agile, Scrum, Ruby on Rails, MySQL, and Solidity. Aqdas is known for strong project management, and has worked on significant projects such as StartBahn, ChainAPI, and AppWork.

## **Gabriel Arguello, Mathematics Consultant**

Gabriel has a strong background in both theoretical and practical mathematics. He holds a Bachelors degree in Systems Engineering from the University Nacional Abierta in Venezuela, as well as a Bachelors in Civil Engineering from the University of Zulia. Additionally, Gabriel achieved a Masters in Applied Mathematics from the University of Zulia. Gabriel has expertise in information theory, neural networks, fluid dynamics, MatLab, C++, relational databases, and regression analysis.

# Team



**Will Ragan**  
Founder



**Jack Ragan**  
Technical Consultant



**Gabriel Arguello**  
Mathematics Consultant



**Andrii Oreshko**  
Smart Contract Language Lead



**Pavlo Horiienko**  
Cryptography Programming Lead



**Dmytro Hapon**  
User Software Lead



**Milos Milic**  
Front-End Development Lead



**Aqdas Malik**  
Blockchain Architect



**Alex Filippov**  
Software Design Lead

# Advisory Board



**Ralph Rennoldson**

Advisor



**Mohit Sirohi**

Advisor



**Naveen Kumar**

Advisor

# Tech Partners



**Lyudmil Petrov**

IT Security Specialist



**Blockchain App Factory**

Development Team



**Credshields**

Smart Contract Auditors



**General Cryptography**

Licensing Partnership

# ROADMAP

## **Phase 1: Quantum Lock Development**

In this initial phase, the focus will be on the development of the Quantum Lock (QL) end-user software and the QL hub system. Following development, the QL system will undergo beta testing to identify any issues or areas for improvement. Enhancements will be made based on user feedback to ensure optimal performance.

## **Phase 2: Symmetric Verifier Node and Wallet**

The second phase involves developing and beta-testing the Symmetric Verifier Node (VN) software and the Pecuni wallet. Additionally, the system will undergo a quantum randomness upgrade for QL hubs, and a QL USB creation and shipping system will be designed.

## **Phase 3: Symmetric Blockchain and Expansion**

In phase three, beta testing and enhancing the Symmetric Blockchain will be the priority. Plans also include developing a multi-hub QL expansion/redundancy system and launching the QL system publicly. Further developments will include creating browser and email plugins for the QL system, a QL password exchange system, and establishing a Quantum Locked VPN.

## **Phase 4: Smart Contracts and Exchange Integration**

During this phase, Symmetric will implement a Turing complete smart contract language and establish an initial fiat/Pecuni exchange. The project will conduct a PROTOP-Pecuni swap and launch Symmetric/Pecuni publicly. Additionally, the development will include creating a Point of Sale hardware/software financial terminal for Pecuni wallet cards.

## **Phase 5: Global Expansion and Optimization**

In phase five, Symmetric will expand QL/VPN hubs globally and launch mobile software versions. A homomorphic encryption layer will also be added, and specific apps will be invited and funded into the Symmetric ecosystem. Furthermore, development will include creating blockchain builder/conversion software and NFT conversion software.

## **Phase 6: Public Launch and Future Innovations**

In the final phase, Symmetric will publicly launch NFT, blockchain, and crypto conversion. The project will develop future hardware/software innovations for Quantum Lock/Symmetric and establish a token stabilization mechanism. Lastly, a DAO voting system will be developed for evaluation, ensuring ongoing community engagement and governance. Throughout each phase, Symmetric remains dedicated to advancing its technology and expanding its ecosystem, fostering a secure and decentralized digital economy.



# Appendix A: Market Data and Citations

**There are over 15B Internet connected devices, projected to 29B in 2030**

- ▶ <https://explodingtopics.com/blog/number-of-iot-devices>

**There are currently 5.35B Internet users – 66% of the global population**

- ▶ <https://datareportal.com/reports/digital-2024-deep-dive-the-state-of-internet-adoption>

**147 zettabytes (8 with 21 zeros after it) of data is expected to be generated on the Internet in 2024**

- ▶ <https://explodingtopics.com/blog/data-generated-per-day>

**99% of Internet browsing is now encrypted**

- ▶ <https://serpwatch.io/blog/ssl-stats/>

**31% of Internet users have VPN's, with half subscribing to paid services**

- ▶ <https://surfshark.com/blog/vpn-users>

# Appendix B: Technical References

## Quantum Computing Video Primer:

- ▶ <https://www.youtube.com/watch?v=JhHMJCUmq28>

## Threat posed by Quantum Computers:

- ▶ <https://www.zdnet.com/article/ibm-warns-of-instant-breaking-of-encryption-by-quantum-computers-move-your-data-today/>
- ▶ <https://www.wired.com/story/quantum-computing-is-the-next-big-security-risk/>
- ▶ <https://www.forbes.com/sites/forbestechcouncil/2022/01/11/the-quantum-threat-to-cryptography-dont-panic-but-prepare-now/?sh=2dc20120713a>
- ▶ <https://www.washingtontimes.com/news/2024/mar/25/nsa-fears-quantum-surprise-if-this-black-swan-even/>
- ▶ <https://beincrypto.com/quantum-computing-risk-bitcoin-crypto/>

# Appendix C: Patent Links

## US Series (fully issued):

- ▶ <https://patents.google.com/patent/US11271724B2/en?q=11271724>
- ▶ <https://patents.google.com/patent/US11483134B2/en?q=11483134>
- ▶ <https://patents.google.com/patent/US11784795B2/en?q=11784795>
- ▶ <https://patents.google.com/patent/US11799631B2/en?q=11799631>
- ▶ <https://patents.google.com/patent/US11784796B2/en?q=11784796>

## EU Series (pending)

- ▶ <https://worldwide.espacenet.com/patent/search/family/080323678/publication/E4201020A1?q=pn%3DEP4201020A1>