Powering Open, Honest, Stable Markets

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CrowdPoint Technologies[1]
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Abstract

Technology is constantly evolving to meet the demands of a given period in history. Society has undergone three significant technological revolutionary periods: agrarian, industrial, and information. Today the next phase is unfurling as the intelligence revolution takes a foothold. Advances in artificial intelligence, big data, cloud computing, and blockchain are ushering in a new time for prosperity.

CrowdPoint is at the forefront of the intelligence age and leads the Web3/blockchain competitive landscape with the advent of its crwd_ platform and Vogon decentralized cryptographic cloud technology. It has developed a unique methodology to correct the data-sharing problem by fixing the foundations of internet technology, building fintech-enabled delivery channels for the market, and empowering the average user with powerful new tokenized asset classes.

Contents

In 1889, Friedrich von Wieser asserted in his book "Natural Value" that utility is the highest principle of all economies. "The utility is imperfectly contained in value. The amount of utility contained is intimately associated with the idea of goods. Where value and utility come into conflict, utility must conquer; nothing in the nature of value could give it the ascendency."[2]

Introduction

CrowdPoint is pioneering the evolution of free markets by developing an ecosystem on the blockchain.

Blockchain ecosystems are networks of participants in a blockchain that share business objectives and processes. In today's market, the business ecosystems operated by large technology companies extract value exclusively for themselves. CrowdPoint is a blockchain ecosystem that ensures that all participants can extract value from its use.

The user is at the heart of the blockchain ecosystem. An individual's data constitutes a digital image of themselves and is the requisite foundation for measuring online e-commerce activities. In the blockchain ecosystem, a user claims a decentralized identity (DID), a new type of identifier with both bullion and numismatic value based on the user's data's volume, velocity, variety, and veracity. The DID allows users to secure their privacy, protect their identity from exploitation, and improve their financial performance.

Problem

The information age made it easier for people to connect with friends and things they care about through the internet. The dot-com era spawned entire new industries overnight and created troves of new data from how people consumed products and interacted with each other. In this mad dash, the average person suffered as consumerism and corporate greed took over. What was supposedly a free market became monopolized by a few giant corporations that crushed innovation and promoted surveillance capitalism.

Society has a data-sharing problem. Human history has never been so interconnected with overwhelming amounts of data to inform decisions at every turning point.

- People need a better way to organize and connect
- Top-down control is no longer an effective solution
- Society is forming market networks to meet challenges

The average person needs equal access to intelligence. However, to garner this, the question must first be answered: what is intelligence?

Exhibit 1

DATA (statistics on a subject) **+ VALUE** (measure of economic activity)
= INFORMATION (representation of event sequence)

INFORMATION x DISTRIBUTION (network to share information)
= INTELLIGENCE (derived beneficial knowledge)

Source: CrowdPoint Technologies.

[2] Wieser, Friedrich von. 1893. *Natural Value.* London: Macmillan and Company.

From the preceding, it is clear that everything possesses intrinsic value. By encapsulating data and value into one transaction and sharing real-time intelligence, CrowdPoint aims to lower the friction of economic alignment of interest across communities of interest.

Solution

Unlike other technology platforms operating today, CrowdPoint helps users who want to unlock value by fixing how people share data, building a better market, and empowering the community.

To meet the stated goals, CrowdPoint developed the crwd_™ product family as the consumer-facing vehicle on top of its proprietary, next-generation decentralized cryptographic cloud platform — Vogon™.[3,4] This platform allows for better intelligence sharing, a delivery channel for Vogon-powered services, and incentive mechanisms to drive user growth.

Exhibit 2

The crwd_ Product Family

- crwd**id** – Returning value to users
- crwd**market** – Buy and sell everywhere
- crwd**capital** – Spend smarter, live better
- crwd**finance** – Build your future
- crwd**world** – Create your world
- crwd**systems** – Powering the digital realm

Source: CrowdPoint Technologies.

Introducing the World's First Decentralized Cryptographic Cloud Platform

Vogon is a fully integrated, end-to-end solution for the market purpose-built to fix how people, technology, and data interconnect. This new architecture has boundless scale, fault-tolerance, and enterprise-grade database speeds to power truly secure computing.

- Microservices architecture allows the installation of apps directly onto a block like a container
- Deterministic concurrency runs three blocks at the same time for blazing-fast speeds
- Group mitosis splits transactions and speeds up the system to achieve an infinite scale
- GraalVM multi-language support opens the platform to a massive 35.9 million developers
- BLS 12-381 cryptography and chain key signatures provide a secure, trustful environment
- Relational tables inside blocks permit API calls and eliminate the need for middleware

Fintech Marketplaces Bring Consumers Closer to the Transaction to Improve User Experience

Using CrowdPoint, marketplaces can eliminate intermediaries and integrate fintech directly into their platforms for a more user-friendly experience.

- Inclusive payments capture demand by reducing friction
- Access to capital unlocks latent supply in the market
- Real-time intelligence expands the buyer-seller relationship
- Integrated systems subsidize product/market by bundling
- Regulated, open markets eliminate misaligned incentives

[3] crwd_ is a trademark of CrowdPoint Technologies, Inc.
[4] Vogon is a trademark of CrowdPoint Technologies, Inc.

Tokenizing Markets Aligns Incentives and Drives Participation

CrowdPoint's platform constantly reduces risk, optimizes performance, and predicts market dynamics from cross-sector activity by tokenizing transactions. Tokenized markets permit the measure of individual activity against a benchmark to ensure performance and lift in group segments or industry coalitions across economic sectors.

Blockchain Technologies

FinTech & Blockchain

Financial technology is one of the stand-out applications of blockchain technology and is especially suitable for the complexities of the banking and securities industries. Numerous upstream, midstream, and downstream proponents are involved in these two industries. The intricacy of the financial services industry has historically created substantial administrative due diligence and regulation laden with high transactional costs. Financial institutions can simultaneously reduce errors and costs by using blockchain technology to manage backend functions.

- Reduced Risk of Fraud & Disputes: Blockchain technology will enhance transparency, security, and efficiency in commercial and capital markets. Through sharing digital information on the blockchain, companies in a cooperative ecosystem could virtually eliminate the cost of intercompany reconciliations and third-party data hubs. Disputes between parties could reference the unified data on the blockchain to arbitrate any disagreement. Merchants can significantly reduce disputed transactions by utilizing crwd**units** and smart contracts as a settlement tool on an immutable blockchain ledger.
- Transaction Simplification and Speed: Cryptocurrencies have the advantage of near-instantaneous transaction speed and low transaction cost. Companies operating in commercial (e.g., e-commerce sites) or capital markets (e.g., securities, bonds, et al.) have a large volume of transactions. Utilizing blockchain payments could significantly reduce transaction costs. One element of this new technology that can bind skeptics and true believers is the potential of blockchain to simplify processes that can lead to enhanced efficiency and cost reductions. Vogon can instantly offer transactional verification across a network without relying on a central authority—potentially reducing operating costs, more securely storing and managing data, and improving transaction processing speed.
- Contracts and Agreements: Various real-world scenarios can be coded in advance to any agreed-upon criteria utilizing blockchain and smart contracts, with the ability to self-execute should all the conditions be met. Such criteria could include triggers such as government approval, completion of payment, or title transfers. Joint ventures could even utilize smart contracts to fulfill audit clauses and codify any sharing costs or revenues issues. By creating a single audit trail, joint ventures can drastically reduce their reporting burden to tax authorities and costs associated with legal disputes.

The potential use cases of blockchain technology are becoming more apparent as the technology becomes more prevalent throughout all industries. Those in the financial technology industry face the same question as leaders in many other industries. The disruptive potential of blockchain technology is high, but blockchain technology requires collaboration between companies in a vertical, supply chain, or industry niche (i.e., ecosystem). Companies must form working groups and explore potential solutions with their existing business partners.

The founder of Ethereum, Vitalik Buterin, underscored the utility of blockchain technology to ecosystems:

"Whereas most technologies tend to automate workers on the periphery doing menial tasks, blockchains automate away the center. Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi drivers work with the customer directly."

Blockchain is a technology that can transform networks; this innovative tool can deliver efficiency, transparency, and liquidity to the companies and stakeholders it connects. Recently, some of the most successful companies have been networks such as Airbnb, Amazon, Google, Meta, and Uber. These companies provide a value proposition by centralizing and organizing market participants; they generate revenue by taking a high percentage of the transactions they facilitate.

As Vitalik described above, blockchain ecosystems flip this centralization model. In ecosystems, monetization is achieved through ownership of the network by its users. The networks of the current internet have a centralized model where the principal entity providing services earns fees.

Indeed, numerous blockchain communities have formed since the first successful blockchain network, Bitcoin, and the subsequent success of Ethereum. These communities were scaled with a decentralized model in mind and became decentralized autonomous organizations (DAOs). DAOs may seem new to traditional markets, but they are, in fact, a combination of gig economies and both private and public capital markets.

Liquidity & Blockchain

"One of the ironies of the stock market is the emphasis on activity. Brokers, using terms such as 'marketability' and 'liquidity,' sing the praises of companies with high share turnover…but investors should understand that what is good for the croupier is not good for the customer. A hyperactive stock market is the pickpocket of enterprise." – Warren Buffet

In the past, successful companies aimed to go public, as doing so would garner monetization events for shareholders, capital for growth, and prestige for the brand.

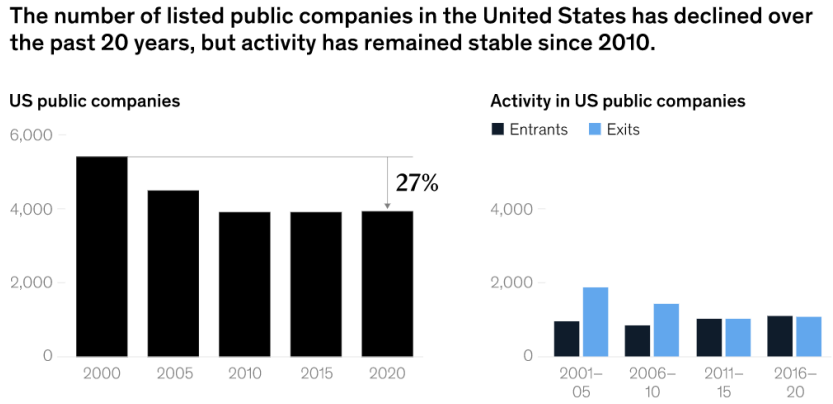
As illustrated in *Exhibit 3*, the number of public companies in the United States has declined over the past 20 years. Fewer companies are going public due mainly to the myriad of challenges of being a public company. These challenges include market pressures (e.g., short-term thinking by investors impacts share price, stronger correlation to geopolitical events vs. private companies, et al.), regulatory constraints, diversified ownership, reporting costs, and more.

McKinsey & Company states, "the number of public-company listings in the United States peaked in the mid-1990s, at nearly 6,000, but that number has fallen by about half over the past 20 years. The number of initial public offerings (IPOs) has also decreased sharply in this period. McKinsey's examination of close to 10,000 public-company listings and IPOs in the United States over the past two decades reveals that the drop-off in the number of listed public companies is primarily the result of changing dynamics in several key sectors: banking, industrials, and technology."[5]

[*Continues*]

[5] (Vartika Gupta, Tim Koller, and Peter Stumpner | McKinsey & Company 2021)

Exhibit 3



Source: S&P Global; Corporate Performance Analytics by McKinsey.

Now companies stay private longer than in the past, while pensions and mega-funds infuse a record amount of capital in public markets. This convergence of capital and public markets portends an opportunity for private companies that utilize blockchain technology to transform themselves digitally. Such companies can garner significant operational benefits and access open, honest, stable markets enabled by blockchain technology.

Concerning the preceding, crypto companies — whether through security tokens or coins — have already blurred the lines between public and private markets. Crypto companies are liquid companies with virtually no barriers to participation for unaccredited investors.

Private Markets and the Evolution of a DAO

The original use of the Decentralized Autonomous Organization (DAO) on other blockchains allowed investors to send money from anywhere in the world anonymously[6]. As part of this process, the DAO would provide those owners tokens and voting rights; the projects varied and were not an efficient use of securitizing assets.

Current DAO models offer liquidity through offerings such as staking (i.e., pledging assets to collateralize a DAO), bonding (the DAO sells discounted tokens to holders who receive fees over the bond period), and selling (exiting the DAO). The most common approach to DAO liquidity is staking.

CrowdPoint's approach to DAOs is organizing private company activity in sub-industries according to the Global Industry Classification Standard (GICS®)[7] (more detail to follow in this paper). By classifying economic activity and tracking it with crwd**units** and other digital assets, "DAOs" within CrowdPoint can effectively become next-generation exchange-traded funds (ETF) or exchange-traded notes (ETN). crwd**units** collateralize these next-generation DAOs in crwd**world**. This method would securitize the underlying industry focus by staking and bonding the value of crwd**units** based on silver. Now the "DAO" becomes a new kind of index that tracks the underlying sub-industry.

Benefits Realized by Investors from Regulated Digital Securities

Many investors, including institutional and retail, have unprecedented cash-on-hand levels but are limited in deploying such funds. In the current climate, investors lose if they: 1) hold onto cash (inflationary risk), 2) invest it in public markets (recession risks), or 3) invest in cryptocurrency (volatility risk, as exacerbated by

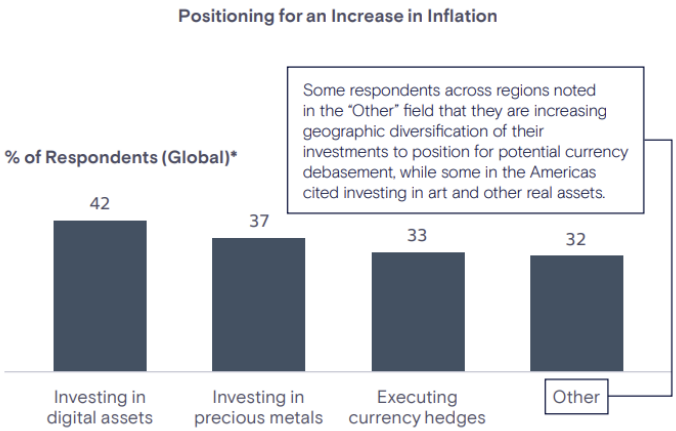
[6] (Reiff 2022)
[7] GICS is a registered trademark of S&P Global, Inc.

the collapse of Terra and Luna). Where can investors pragmatically expect to find any yield? A logical answer is to invest in private companies focused on innovation, specifically digital assets issued by private companies and traded on blockchain-enabled exchanges with liquidity.

Large institutional investors (e.g., pension funds) will soon have no choice but to embrace new asset classes as debt float shrinks along with developed-market demographics. If such funds start seeing declining levels of inflation-adjusted yield, these conditions will inevitably force investors to seek other allocations for their capital.

Similarly, more family offices are considering investments in digital assets. According to a recent Goldman Sachs survey of 150 family offices, "some family offices are considering cryptocurrencies to position for higher inflation, prolonged low rates, and other macroeconomic developments following a year of unprecedented global monetary and fiscal stimulus… Of the approximately two-thirds of family offices actively thinking about an increase in inflation, digital assets emerged as one portfolio solution." The survey results indicate that 42% of respondents are investing in digital assets, and 37% are investing in precious metals (see the chart below).[8]

Exhibit 4



Source: Goldman Sachs.

CrowdPoint's Blockchain-enabled Solutions for Investors

Indeed, investors can draw the logical conclusion that digital assets' potential yield looks attractive compared to traditional investment vehicles. In the case of pension funds, yield is necessary for the funds to offset their future liabilities. Shrinking yield in public securities and fully funded status will allow these funds to stomach greater risk. Further, family office interest in digital assets will likely increase as secure platforms emerge and regulations become more explicit to traditional financial counterparts.

CrowdPoint believes that evangelizing the utilization of registered digital assets backed by transactions and precious metals will deliver pension funds, family offices, broker-dealers, and registered investment advisors, among other investor types, avenues for realizing yield. These registered digital assets are possible because of innovative technologies such as blockchain.

The blockchain value proposition offered by CrowdPoint provides investors with unprecedented secondary markets. Investors can gain previously unrealized value by bringing private companies into a blockchain ecosystem (including their securities and commerce). Further, these private companies will access additional

[8] (Goldman Sachs 2021)

distribution channels to reach new customers and investors. CrowdPoint's technology offering allows small and medium-sized private companies to utilize its platform to increase operational and financial efficiencies and compete on the same playing field as larger publicly-traded enterprises.

Recent examples of blockchain changing how transactions happen include the syndication of bonds with the European Investment Bank's first 100 million Euro digital bond issued on a public blockchain. However, a more significant opportunity for using Vogon technology is private debt. It will not be long that trade finance, direct lending, and peer-to-peer lending move into distressed assets, litigation financing, asset transfers, and specialty finance.

Secondary Markets: Liquidity Created via Blockchain-enabled Computational Trust

- Blockchain technology minimizes or eliminates third parties in transactions. In the case of securities transactions, the disintermediation as mentioned above refines markets by speeding-up equity monetization events and removing non-essential parties
- Private markets present a challenge in terms of liquidity. Investors in private companies must wait for a monetization event or another exit strategy (e.g., company buy-back or OTC trade)
- Institutional investors in private markets (e.g., private equity firms, venture capital firms, family offices, or others) stand to benefit significantly from blockchain-enabled secondary markets
- Limited partners or other investors in institutional funds would likely be more willing to invest in a fund if they know there is an avenue for them to withdraw their investment
- Limited partners or other investors in institutional funds would be able to trade digital assets/securities with other investors connected to the transfer agent or ATS
- Institutional investors such as private equity firms or venture capital firms could fundamentally alter their investment strategies, related timelines and costs, and IRR performance metrics due to blockchain technology's ability to optimize the transaction process for shareholders
- Platforms trading private securities would garner the benefit of revenue from trading volume and related fees

Blockchain Buttonwood Agreement

The Buttonwood Agreement of May 17, 1792, established the basis of the modern New York Stock Exchange. The brokers who wrote this agreement and signed it created trust in the system by agreeing to the following key terms: 1) brokers would only deal with each other, eliminating auctioneers and speculators, and 2) standardize commissions at 0.25% of specie value.

In establishing a uniform, closed, members-only financial exchange trading desk, the marketplace in the United States began to switch from Philadelphia to New York City. The shared trust between investors and brokers, investors, and businesses grew as investors knew valuations and other metrics were accurate, and the traded currency was valid. In 1817 the number of brokers had grown, and they named their trading desk the New York Stock Exchange Board.

In the 1800s, a "curb exchange" began on Broad Street to exchange stocks for those companies that did not meet the requirements for the NYSE floor. The curb exchange grew into the American Stock Exchange when in 1921, it moved into actual "quarters" on Trinity. In 2008 the NYSE acquired the AMEX and Euronext exchanges. Today, the stocks traded on the AMEX are small-cap stocks.

In keeping with the Buttonwood Agreement, traders in Chicago organized a commodities exchange in 1848 to market agricultural products (corn, soybeans, grains). They then expanded to include options and futures on several other products (meat, gold, silver, U.S. Treasury Bonds).

The war engine had driven the world's economic growth from 1915 to the 1920s. In 1929 the stock market in the U.S. crashed as speculation failed to deliver hoped-for returns on investments. In 1933, as part of Roosevelt's New Deal, the U.S. Congress passed the Securities Act to create a uniform set of rules to protect

investors against fraud. In 1934 Congress established the Securities and Exchange Commission (SEC) to oversee the implementation of the Securities Act.

Since 1972, when 24 brokers joined in organizing a securities marketplace, financial markets have continued to grow and expand. The core principles of the Buttonwood Agreement remained in place as the NYSE grew over this period. Brokers traded only with other brokers. However, as the 19th century progressed, the exchange sold seats within or on the exchange to brokerage houses, and the number of brokerage houses increased. According to the Financial Industry Regulatory Authority (FINRA), there are approximately 3,500 broker-dealers in the USA today.

History shows us that technological growth due to World War II and the Cold War has changed the economies of all nations. Once deemed science fiction (e.g., space travel, walking on the moon, watch phones, nuclear-powered ocean-going ships/submarines) are commonplace today. Investment in this now-present future for financial markets is vital. The 24 brokers who signed the Buttonwood Agreement focused on commodities and bonds. Indeed, it is interesting to note that the Global Industry Classification Standard taxonomy used in current markets includes 24 sub-industry groups.

This historical legacy and modern day-organization lay the framework for innovation in markets. Each of the 24 sub-industries is part of the CrowdPoint blockchain ecosystem. As stated earlier in this paper, CrowdPoint is pioneering the evolution of free markets by developing an ecosystem on the blockchain. With CrowdPoint's ecosystem, the fear of speculators damaging market value as witnessed in the 19th century, the Great Depression, the bursting dot-com, and housing bubbles of the late 20th century becomes null. Investors will be able to analyze such events with greater accuracy and take measures to minimize the effects they could produce. CrowdPoint's ecosystem, powered by blockchain technology, will enable investors to garner alternative real-time data from transparent reporting and analytics offered by the platform. CrowdPoint brings market participants closer to the ground truth.

When brokers created the Buttonwood Agreement in 1792, they established an exchange system they controlled. The Buttonwood Agreement established what the brokers wanted exactly — trust.

Taking this lesson to heart, CrowdPoint aims to build an ecosystem of consumers, companies, investors, vendors, brokers, exchanges, and more, working together to create open, honest, and stable markets. As Warren Buffet stated in the above-referenced quote, "what is good for the croupier is not good for the customer" – CrowdPoint proposes a circular ecosystem that continuously organizes, builds, and stimulates both 1) commercial markets and 2) capital markets. These markets build upon the notion of shared common knowledge. Just as the original Buttonwood Agreement aimed to bring trust and standardization to markets, CrowdPoint intends to build an ecosystem grounded in transparency. Participants in the CrowdPoint blockchain ecosystem operate under a standard ruleset. Like public markets, securities in the CrowdPoint ecosystem would be subject to regulations set by the SEC. As a result, economic activity within the ecosystem would follow the same reporting standards as public markets.

Market Differentiator

Organizing Markets

The CrowdPoint blockchain ecosystem is an assembly of companies that derive exponential efficiencies through sharing a unified blockchain protocol. The ecosystem organizes transactions according to the Global Industry Classification Standard (GICS), an industry taxonomy developed in 1999 by MSCI and Standard & Poor's for use by the global financial community.[9] "Companies are classified quantitatively and qualitatively. Each company is assigned a single GICS classification at the sub-industry level according to its principal business activity. MSCI and S&P Dow Jones Indices use revenues to determine a firm's principal business activity. GICS is a common global classification standard used by thousands of market participants across

[9] (Wikipedia 2022)

all major groups involved in the investment process: asset managers, brokers (institutional and retail), custodians, consultants, research teams, and stock exchanges.[10]" The GICS taxonomy is organized into 11 market sectors, 24 industry groups, 69 industries, and 158 sub-industries.

CrowdPoint intends to organize companies and market activity at the sub-industry level. At this sub-industry level would be clearinghouses that would create digital assets correlating to market activity within the clearinghouse. These assets would provide investors with multiple investment opportunities, including direct investments in companies within the clearinghouse (e.g., security tokens) or investments at a broader, sub-industry level for all companies within the clearinghouse (e.g., index tokens). Further, the clearinghouses could issue their regulated crypto instrument for settlement within the sub-industry (e.g., merchant coins (explained in greater detail later in this paper).

Technology Differentiator

Overview

At CrowdPoint, the underlying technology stack has a clear market differentiator. It redefines the typically separated applications of decentralized systems, distributed networks, microservices architecture, blockchain ledgers, and relational databases into one integrated platform. CrowdPoint built an entirely new approach to blockchain technology by creating a decentralized, distributed cryptographic cloud. This solution is called Vogon.

CrowdPoint's Vogon is a publicly available, open architecture, decentralized cloud service platform with native blockchain ledger capabilities. Vogon is purpose-designed to support guest programming languages allowing for broader access to developers to build more efficient and effective smart contracts and applications. This powerful decentralized cryptographic cloud is the engine of CrowdPoint's blockchain ecosystem and represents the building blocks of free and competitive markets in the future. Any buyer or seller may securely and transparently trade in this market with the system allowing market forces to determine prices in an integrated manner.

Introducing Vogon

"Vogons are described as officiously bureaucratic, a line of work at which they perform so well that the entire galactic bureaucracy is run by them." – Douglas Adams, Hitchhiker's Guide to the Galaxy

Vogon is a distributed and decentralized cryptographic cloud platform with several next-generation features placing it far ahead of the competitive landscape. Vogon's features include:

- Real-time, high-performance decentralized crypto-cloud workhorses
- Infinite scale through consensus group mitosis (similar to cell splitting)
- Blockchain installable microservices onto the decentralized cloud
- No performance of useless work with average energy consumption
- Use a new model for mediating byzantine fault tolerance
- Provide a fresh rethinking of decentralized consensus
- Solve current decentralized application update vulnerabilities
- Superscalar, extremely fast, and written in Java for widespread use
- Enable relational database (RDBM)-like functions for easy legacy integration

Blockchain Challenges

The many problems with the existing blockchains limit the commercial applications, widespread adoption, and use of the technology. Existing blockchain technology has limited use in enterprise settings because of

[10] (MSCI n.d.)

inadequate processing capacity and speed, on top of the high energy consumption required to operate the protocols.

Additionally, conventional wisdom states that a blockchain is a kind of database because it is a digital ledger that stores information in data structures called blocks. However, this is not an accurate representation of blockchain technology. Blockchains merely track a list of transactions and store data for a transaction off-chain in traditional relational databases. Many experts stipulate that a blockchain is a very slow database, and blockchain developers will continually boast speeds to refute that label.

Claims regarding the speed of blockchain are prevalent everywhere, but there is a simple measuring stick to assess the credibility of these statements. An internet search on the performance of a database on a single computer will return the ceiling value of data performance for a database on one piece of hardware.

Basic math is the only requirement to determine how fast a blockchain solution will be — merely take the number of cryptographic operations to calculate or verify a block. Then, using well-known performance metrics for those operations, the upper bound can be calculated on the number of blocks per second that a single machine can perform.

Blockchains will remain limited in speed until protocols shard into multiple blockchains; otherwise, no singularly-processed blockchain solution will ever be that fast. When creating a single block on the blockchain, the cryptographic function should distribute operations to multiple machines. Host machines must duplicate some of these processes; however, performance in a group working on single blocks does not scale linearly with the machinery. In addition, the machines must share data with other machines that perform the work to validate output. This process is why blockchain speed claims are truthfully problematic.

When a blockchain company ascertains it can perform 100,000 transactions per second (TPS), a simple back-of-the-napkin approach can assess the statement. Calculating speed by the number of *x* signature verifications by *y* new signatures and *z* hashing operations needed to perform one transaction returns the performance value. Another way to say it would be the performance of those algorithms is this; therefore, the maximum throughput on a single machine is the same number. This simple mathematical process and logic challenge a blockchain owner's "problematically truthful" calculations.

Speed, Scalability, Security, Sharding, Microservices, and More

While speed and scalability make for a complex discussion, when discussing CrowdPoint's Vogon technology, there are two protocol versions in development with far greater capacity than the metrics of blockchains today. CrowdPoint has deployed Vogon 1.0 in a lab environment (i.e., the Vogon TestNet) and is building Vogon 2.0 for release in the coming months. With CrowdPoint, interaction with Vogon through read and write functions directly on-chain is far faster than competitors' claims today. CrowdPoint delivers this value proposition to the market with a rich set of APIs and microservices that expand using guest programming languages. This expanding nature enables Vogon to grow both in size and speed.

According to current TestNet analytics, Vogon 1.0 is capable of 10,000 TPS in a single consensus group. With many consensus groups working together in unison, it would not take long for 100 groups to reach radically fast TPS speeds. That means the more consensus groups; the faster Vogon becomes as more nodes come online.

Mind-boggling Fast Speeds

Vogon 2.0 will shard the blockchain into many smaller chains and route transactions through the network, and by doing so, it has no actual limit to the number of horizontal transactions the network can perform. This speed and scale are no less than the capabilities of a protocol such as BitTorrent, often used by savvy consumers for downloading media-rich files.

The comparison to BitTorrent only helps visualize the wholly distributed nature of clients and nodes, with no implicit choke points. Hence, as the network grows, the transactional capacity grows with it. This sharding combined with microservices and many address spaces distributed across many consensus groups effectively gives unbounded speed and scale. Sharding is a method for distributing a single dataset across multiple databases used to replicate and store information across multiple machines.

This method allows larger datasets to be split into smaller chunks and stored in multiple data nodes, increasing the system's total storage capacity.

Vogon Power Requirements

The power requirements for running Vogon on a machine are the same as running any standard piece of enterprise-grade software. This level of energy usage is no different from running data-intensive software services on Amazon Web Services, Microsoft Azure, and Google Cloud.

Vogon Security

Vogon uses aggregate BLS 12-381 keys, a cryptographic signature scheme that allows users to verify that a signer is authentic. These are organized into a set of keychains to verify blocks on the Vogon protocol. These keychains are subsets of their respective blockchains, indicating consensus group membership.

A Safer, Better Internet

Vogon creates a safer internet where the playing field is level, and massive internet companies cannot monopolize the lives of everyone through subjective and tyrannical practices such as censorship and de-platforming.

Towels: Vogon Microservices, Creating a Decentralized Cloud

The most significant difference between the Vogon decentralized cryptographic cloud platform and other solutions is that Vogon hosts microservices natively. A microservice is a small, highly specialized set of web services for achieving some goal. With Vogon, they come in three primary forms:

- War files containing micro-site static assets for web browsers and other clients
- Web service API code for the handling and execution of services on Vogon
- Transactional objects for manipulation of the blockchain

All of these microservice forms install onto the Vogon platform. Once installed, these microservices are immediately available for use on the internet. No other blockchain solution exists with these capabilities.

Development Example

A developer named Tony Stark can build a set of web service APIs to represent fractional ownership of his collectibles. Additionally, he may create a website to view those collectibles, logs to show provenance, and transactional objects used to change ownership or allow the collectibles to be bought and sold on open markets. When Tony deploys these individual modules, he uses what CrowdPoint calls *towels*.

In Hitchhiker's Guide to the Galaxy, towels are the most useful items in the known universe. Immediately, towels enable thousands of network nodes to spin up and serve the website, accept API calls, and perform transactions for Tony's collectibles. Through towels, Tony has deployed his collectibles to the decentralized cloud.

Tony can leverage Vogon's architectural design to help him build decentralized and distributed applications using microservice containers enabling each application function to operate as an independent service.

This architecture allows each service to scale or update without disrupting other services in the application. CrowdPoint chose to build these microservices on Java Virtual Machine (JVM).

JVM is the runtime engine of the universally used Java Platform. By building on this tech stack, Tony can leverage any program written in Java or other languages compiled into Java bytecode to run on any computer with a native JVM. JVMs can run both as clients and services, and web browsers can activate JVM when it encounters a Java applet.

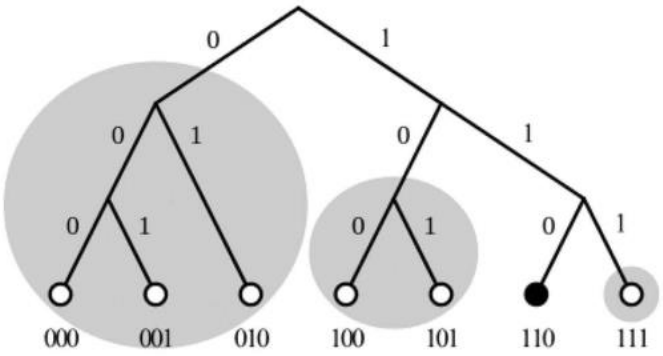
Vogon Consensus: Block Graph at Scale

Vogon consensus is superscalar, with the ability to conduct the digital equivalent of cellular mitosis by splitting blocks to maintain optimal performance. In a transaction, the first block can simultaneously keep other blocks in-flight intended for addition to the blockchain. This high-performance design is capable of processing thousands of transactions per second.

As the number of Vogon grows past the optimal size for a consensus group, the consensus group splits into two, each taking responsibility for half of the keyspace in the blockchain. The Vogon with keys starting with a binary 0 go to one group, and those starting with a binary 1 go to the other group.

As the blockchain grows, it becomes a block graph and identifies the new groups with the leading bits generated by the split. In this process, one group becomes two. During lookup, the block group can quickly identify with one leading bit the relevant address space. This process continues as two groups become four, identified by the two leading bits, four groups become eight, identified by three leading bits, and so on. The below diagram visualizes the process:

Exhibit 5



The leading bits that identify the consensus groups act to segment or *shard* the keyspace.

Source: Wikipedia.[11]

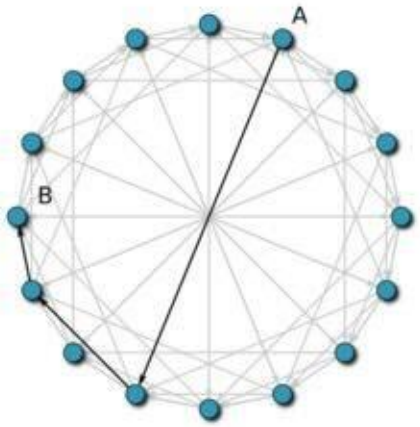
Addresses will automatically route to the consensus group identified with the same leading binary digits as the address. This process happens for cryptocurrency wallet addresses and developer scopes when identifying where microservices install. Invocation of microservices and other operations route through this mechanism to the correct consensus group.

This type of routing is very similar to kademlia, a distributed hash table used by the most popular peer-to-peer (P2P) protocols such as BitTorrent.

[11] https://en.wikipedia.org/wiki/Kademlia

The following diagram visualizes the consensus groups residing around a circle, sorted by their leading binary digits. Any consensus group can quickly locate them through a kademlia "similar" routing protocol.

Exhibit 6



Source: Wikipedia.[12]

Searching on Vogon

With Vogon, the concept of *search* is not like the blockchain equivalent of Internet Explorer. Within Vogon, search means finding automatically curated data from the blockchain. Every Vogon, by default, can search throughout the network. Currently, the search type manifests relational tables and the blockchain microservices installed to manage the tables.

These microservices are responsible for the transactions that create blockchain artifacts and curate data into the relational tables that those services can use to perform searches. It is also possible to weld more advanced data services into Vogon and make those services available for data curation, search, and other analytics by exporting APIs to the microservices.

Each exporting API, web interface, and internal transactional object can modify the blockchain under cryptographic scrutiny and data curation, including search or A.I. discovery. More exotic examples would be tamper-resistant voting modules or censor-resistant journalism modules. The easiest way to explain Vogon's consensus mechanism is proof-of-stake.

Proof-of-work requires adversaries to have 51% or more of the network's hash power to start rewriting the blockchain. Proof-of-stake is *supposed* to replace hash power with invested interest. However, many blockchains incorrectly reduce this to a social problem using voting or something equally ridiculous instead of crypto.

Vogon: Defending the Human Identity

While very similar to kademlia, Vogon is not quite the same. Vogon does provide a way for millions of computers to self-organize into a network, communicate with other computers on a network, and share resources like files and large binary objects between computers, all without a central registry or lookup run by a single person or company. Vogon's consensus groups contain up to hundreds of members. Each is fully interconnected, allowing the leaf nodes to act as a group, exhibiting a much more intelligent and faster-routing fabric than pure kademlia.

[12] https://en.wikipedia.org/wiki/Chord_(peer-to-peer)

Some transactions must cross address boundaries between multiple consensus groups, such as a transaction to exchange one cryptographic asset for another, where their addresses have sharded them into different consensus groups. When this happens, Vogon performs *meta-consensus,* a two-stage *atomic* operation that merges consensus decisions from two or more consensus groups.

The atomic transaction simultaneously initiates on all concerned consensus groups, and the results get shared between them. The first step authorizes the transaction on the blockchain of all concerned consensus groups, and that authorization commits when each concerned consensus group mathematically combines the results.

Vogon Design and Engineering

World-renowned and accomplished computer scientists designed Vogon. The team's experience ranges from cryptographic protocol implementations for securing credit cards on the internet at Javasoft / Sun Microsystems to running the Java Commerce team and working on early cryptocurrencies technologies such as Java Coin and Java Card.

CrowdPoint's data scientists are considered luminaries in academic and business communities with published papers and multiple patents. CrowdPoint's data scientists are authors and coauthors of hundreds of referenced papers, books, and distributed cooperative systems engineering experts.

Vogon was designed from the ground up with the discipline and experience from such endeavors. The design allows it to work at an ad scale and potentially supplant or replace traditional public key infrastructure (PKI) such as digital certificates. The vision is even more significant.

The human identity is at the center of everything people do. While the technology world is engaged in the digital slave trade, buying and selling human value by large profit-driven corporations and nefarious actors, CrowdPoint has chartered itself to treat the human identity as a new currency. The bullion weight of precious metal backs this currency, and real-time fluctuations in numismatic value get expressed as non-fungible units for the benefit of humanity.

CrowdPoint and its blockchain ecosystem partners proudly present this globally disruptive technology and business model implementation to the world.

Vogon and Digital Transformation

Digital transformation traditionally is the implementation of technology to create new — or modify existing — business processes, culture, and customer experiences to meet changing business and market requirements. In the world of blockchain technology, the concept of transformation is exponential as it requires a migration away from traditional business ecosystem models. In this model, top-performing companies excelled by building a digital platform and extracting the most value. All participants distribute and share that same earned value in a blockchain ecosystem.

For B2B and B2C businesses adopting the blockchain, this transformation creates trust and security for consumers, customers, trade, and business partners in the anonymous world of cross-border digital connectivity.

Additional Selected Intellectual Property developed by CrowdPoint

- Headless distributed e-commerce tools
    - GICS real-time categorizer
    - Magento blockchain integration
    - Material resource planner
    - Customer relationship manager
    - Affiliate lineage and tracking system

        - Product onboarding showcase catalog
- Identity database with approximately two billion individual records
- Identity management, contact card, and KYC/AML tool
- Dynamic agent-based hybrid systems routing algorithm
- Intelligent microgrid management system
- Proprietary ticker symbol system for private companies
- Hamiltonian data tomography engine
- Enhanced Sharpe ratio algorithm
- Financial markets A.I. forecast engine
- Drag-and-drop website builder
- Guest language virtual machine API

Tokenomics

Context

A utility token is a crypto token that serves some use case within a specific ecosystem. These tokens allow users to perform some action on a particular network. Utility tokens are not mineable cryptocurrencies. They are usually pre-mined, created all at once, and distributed in a manner chosen by the team behind the project.[13]

- Utility tokens do not represent any ownership stake in the project for which a company raises investment capital. Instead, they allow the holder to buy or sell the underlying tokens preferentially. The value of utility tokens usually fluctuates depending on the demand for the project. It may generate profits for the token acquirer if the project reaches its intended purpose with reasonable success.[14]
- It is helpful to think of utility tokens as coupons or vouchers. The asset a utility token represents is a certain level of access to a product or service which the holder can gain by redeeming it.[15]
- Examples of Utility Tokens:
    - Filecoins holders can exchange Filecoins for access to Filecoin's decentralized digital storage capabilities
    - Ether holders can exchange Ether for access to dApps or execute smart contracts on the Ethereum blockchain
    - Basic Attention Token (BATs) holders can earn BATs by viewing targeted ads; they can then exchange BATs for premium services on the Brave network
- A token, in data science, is a value—like a randomly-generated number—assigned to sensitive data to mask the original information. So, in a blockchain, a token is a number assigned to data stored within the blockchain.
- Transforming an asset into a token is called *tokenization*.

*Introducing crwd**units***

crwd**units** are the primary internal crypto-settlement tool of CrowdPoint and will be used to pay transaction fees within the ecosystem.

- crwd**units** will be a hybrid utility token and digital asset designed to function as a transaction processor for API calls and financial settlements.
- crwd**units** will be commodity-backed (i.e., silver) tokens that have instant settlement time, custodianship in a U.S. chartered bank, and circulation via a Commodities & Futures Trade Commission (CFTC)-registered central counterparty clearinghouse.

[13] (Brian Nibley, SoFi Learn 2021)
[14] (Murtuza Merchant, Cointelegraph 2022)
[15] (METACO 2021)

- crwd**units** have additional security through silver stream agreements purchased from reputable silver mines that will collateralize the utility token.
- crwd**units** will be modeled as forward claims or swap contracts – and therefore subject to CFTC regulation as a utility token.

Investors will purchase crwd**units** backed by a specific weight of silver and will be entitled to coupons, future services, or cash flows. Investors will experience accretive benefits as more users adopt Vogon/CrowdPoint driven by speculation of the growth potential of crwd**units** (additional detail below).

Furthermore, crwd**units** will trade on multiple exchanges worldwide, so holders will be entitled to benefits from secondary trading of crwd**units**.

Adding Reality to the Ecosystem

CrowdPoint believes in digital assets with real, tangible value. It accomplishes the preceding with crwd**units** by utilizing silver as collateral to establish a floor price for each unit.

CrowdPoint's unique approach to tokenizing silver stems from collateralizing its crwd**units**. CrowdPoint would provide upfront investment to a mine for silver-in-the-ground as a streamer agreement; such mine would, in turn, agree to mine and deliver silver in a specific period. Since CrowdPoint's paid for silver upfront, the silver would be at a discount to market prices. This agreement is fractionalized and spread across the circulating crwd**units** for their use as a remittance tool and reserve asset.

For background, note that silver tokenization occurs using a reference number against real-world ownership of a silver streamer agreement, representing ownership on an immutable ledger powered by Vogon. The tokens then receive a second number that describes each token as a fractionalized *child* to the overall holding. In short, crwd**units** would reference the child relationship to the overall silver streamer agreement.

With this approach, crwd**units** essentially become tradeable commodity-backed bonds. crwd**units** offer *honest* stability to holders of these instruments since they know (thanks to Vogon's immutable blockchain ledger) that silver is backing them.

Commodity-backed investments have the added attraction of a speculative vehicle for investors who believe that the underlying commodity price will rise. This instrument type enables an exchange with a reasonable expectation of accretion (i.e., income). Additionally, commodity-backed investments frequently are used to hedge against inflation. This design means that crwd**units** could behave as deflationary assets.

By combining silver with a digital token, crwdunit investors will maintain metal exposure in their portfolios. Silver is synonymous with money in many countries around the world. It has many uses in electronics, industry, and medicine, and it is a miracle metal for CrowdPoint's blockchain ecosystem. At CrowdPoint utilizes silver as a monetary metal. crwd**units** deliver the blended benefits of cryptocurrencies with silver.

*crwd**units** Utility and Features*

As CrowdPoint grows its ecosystem with newly developed products and services or through acquisitions and partnerships, the utility of crwd**units** will expand. Initially, the following are benefits garnered by holders of crwd**units**.

- Accrual Benefits
  - crwd**units** holders will benefit directly from any protocol revenues and fees generated from products built on Vogon. This accrual includes on-chain revenue from crwd**units** and potential off-chain revenue sources from crwd**units** or CrowdPoint commerce products in the future.
- Development/Services Utilities

        - crwd**units** will pay for using proprietary services and products offered by CrowdPoint, including the development of Vogon and the use of CrowdPoint's identity database.
- Staking Benefits
    - crwd**units** will stake clearinghouses that issue merchant coins and index coins. crwd**unit** holders will enjoy increased staking rewards for their locked crwd**unit** deposits.
- Redemption Benefits
    - crwd**units** will be redeemable for cash from participating banks in the CrowdPoint ecosystem. The redemption would be at par value or other exchange rates determined by the bank.
- Privileges, Experiences, Community Access, and Merchandise
    - crwd**unit** holders will grant exclusive privileges, including curated experiences, merchandise, support, and more. Such benefits will be tiered, so holders with more benefits realize increased perks.

Summary: Open, Honest, Stable Markets

CrowdPoint's Vogon is a decentralized cryptographic cloud platform that includes a blockchain to enable:

- Open: Permissionless public and open architecture with guest language virtualization, allowing a broader developer community to build more efficient and effective smart contracts.
- Honest: Freely competitive markets where any buyer or seller may trade, and the competition determines prices with transparency, speed, decentralization, and immutability.
- Stable: Foundational monetary elements using silver-backed crwd**units** to establish a reserve for transactions and redemptions to occur seamlessly and with trust in the system.

Illustrative Use Case

The following describes a use case in which CrowdPoint would provide services to one of the 11 economic sectors classified by GICS. This example will focus on the Utilities Sector.

CrowdPoint would utilize its technology products and services to deliver incremental value to the Utilities Sector. Market participants in this sector, such as renewable energy companies (e.g., a residential solar company), utility companies, battery manufacturers, and commercial banks, can help achieve this value through partnerships.

In this example, a residential solar company called SolarRUs could be seeking to scale its operations and expand its market share. In order to do so, SolarRUs needs growth capital, so it engages CrowdPoint. Note that SolarRUs would pay for all CrowdPoint services with crwd**units**.

CrowdPoint would provide the infrastructure and ecosystem participants needed for SolarRUs to raise capital through a Direct Public Offering (DPO). SolarRUs would utilize the Jumpstart Our Businesses Act (JOBS) to offer institutional and retail investors security tokens. "The JOBS Act allows companies to access funding in ways that were not allowed before due to SEC securities regulations. It reduced regulation, including oversight and reporting, removed certain barriers, and allowed new ways of accessing capital. It makes it easier for entrepreneurs to start or grow their current businesses.[16] CrowdPoint delivers this service in its ecosystem via crwd**capital**.

SolarRUs successfully raises growth capital through a Securities and Exchange Commission (SEC) regulated security token offering. It leveraged CrowdPoint's database and related services to hyper-target investors interested in clean energy investments. Investors would learn of the security token offering through crwd**world** or other communication mediums. SolarRUs wants to provide liquidity to its security token holders, so it lists them on exchanges under crwd**finance**. SolarRUs has built its capital market.

[16] (Gabe Alpert 2022)

Now, SolarRUs wants to build its commercial market. The company thinks it can gain market share by having a SolarRUs coin. The CrowdPoint ecosystem delivers this by helping SolarRUs create a merchant coin. These are digital securities with a particular class of shares for the issuing entity. These securities behave as transaction processors exclusive to the issuing entity (i.e., the merchant coins are a proprietary payment rail for a company). Merchant coins are essentially *stablecoins* pegged to cash or a cash equivalent. Since Vogon powers merchant coins, they can be settled instantly and for minimal fees.

SolarRUs incentivizes customers and partner vendors to do business with SolarRUs through merchant coins since doing so gains the customers/partners discounts, perks, and other benefits. SolarRUs can deliver these added benefits thanks to increased market share from customers who want the perks of paying in merchant coins.

SolarRUs further builds its commercial markets by building a blockchain-powered online marketplace via crwd**market**. The company uses crwd**units** to pay for this platform and leverage CrowdPoint's database to identify and hyper-target potential customers based on their interests as identified in their crwd**id**. When a transaction settles, customers will receive a reward if their identities drove commerce to SolarRUs.

In addition, to merchant coins, SolarRUs could utilize CrowdPoint's technology services (crwd**systems**) to issue other digital assets such as tokenized solar renewable energy certificates (SRECs). Like carbon credits, SRECs are a performance-based solar incentive allowing solar energy producers (e.g., solar homeowners) to earn additional income. SolarRUs could create tokenized SRECs for its customers and then list these instruments on exchanges within CrowdPoint. SolarRUs customers would capture additional income from the SRECs they trade, and SolarRUs would be able to differentiate itself from other solar companies and gain market share.

Separately, a bank operating in the CrowdPoint ecosystem could purchase solar renewable energy certificates and bundle them to create green bonds. The bank would essentially purchase the rights to SRECs some years in advance and then guarantee a fixed return to its green bond purchasers. Leveraging artificial intelligence, intelligent microgrid management, and other intellectual property developed by CrowdPoint, the bank could reasonably mitigate its risk by bundling solar homes to create green bonds and offer a higher yield to bond investors.

Beyond SolarRUs and a green bank, CrowdPoint will service other companies operating in the Utilities Sector (e.g., other residential solar companies, clean energy product retailers, battery manufacturers, et al.). The economic activity of the companies operating in the Utilities Sector will be organized and reported as an industry index. Since CrowdPoint is tracking the industry on its own, it could create an index token that functions similar to an exchange-traded fund (ETF) or exchange-traded note (ETN).

The Utilities Sector could produce several digital asset classes for trade, including security tokens, merchant coins, SRECs, green bonds, and index tokens.

crwd**unit Value Propositions**

Value-added Benefit to Crypto Exchanges

crwd**units** will address the current trend of reduced trading volume within the cryptocurrency market, which has declined almost 75% across all exchanges as the market corrects itself. Lower trading volume translates to lower revenue for cryptocurrency exchanges. Crypto exchanges provide the backbone for the crypto market as they provide the platform for the valuation of projects. Reduced revenues translate to less capital flow toward innovation and community-building projects. This downward trend ultimately leads to the reduction of growth and progress of the entire crypto market.

crwd**units** will provide crypto traders and fund managers with a tool to participate in commodities markets while remaining in crypto. In doing so, crwd**units** will introduce new trading volumes to crypto exchanges uncorrelated to the crypto market. Vogon will continue to generate trading volume in a bear crypto market through traders engaging in speculative silver positions. This volume translates to a steady and diversified revenue source for crwd**unit** exchanges.

Value-added Benefit to Companies

There is a race for fintech companies to innovate in the instant settlement space. In today's day and age of instant gratification with on-demand delivery apps, limitless information, and content available at any time, there is still substantial room for innovation in instant value transfer.

The lag time in value transfer speeds is evident in areas from securities trading (i.e., T+2 transactions: trade date plus two days) to international bank transfers (3 to 5 business days). In either case, the lag time is too great in today's world. This latency is why companies need blockchain-enabled solutions for transaction settlement.

Stablecoins have the potential to offer the same level of mass blockchain adoption that NFTs offered Web3, but instead of consumers on OpenSea and Rarible, these early adopters will be institutions. Supply chains are increasingly global, and with the changing economic environment and rising interest rates, the world now more than ever needs cost-efficient means of settling instant B2B payments across borders — stablecoins can be a powerful solution.[17]

crwd**units** will serve as powerful and effective instant settlement tools benefiting retail and institutional players. All players who utilize crwd**units** win when using a blockchain ledger-tracked settlement tool like a crwd**unit** since the transaction is fast, transparent, and, as a result, less risky.

CrowdPoint Roadmap

Stage 1: Friends and Family Round
July 2022
Number of crwd**units**: 5 billion
Restriction Period: 24 months
Target Raise: $5 million @ $0.001 per crwd**unit**
Vehicle: Simple Agreement for Future Token (SAFT)
Milestone: Further develop TestNet and integration of CrowdPoint intellectual property on Vogon

Stage 2: Pre-Sale Block One
Q3 2022
Number of crwd**units**: 2.5 billion
Restriction Period: 12 months

Stage 3: Pre-Sale Block Two
Q4 2022
Number of crwd**units**: 1 billion
Restriction Period: None

Stage 4: Pre-Sale Block Three
Q1 2023
Number of crwd**units**: 571 million
Restriction Period: None

[17] (Pat Rabitte | Blockworks 2022)

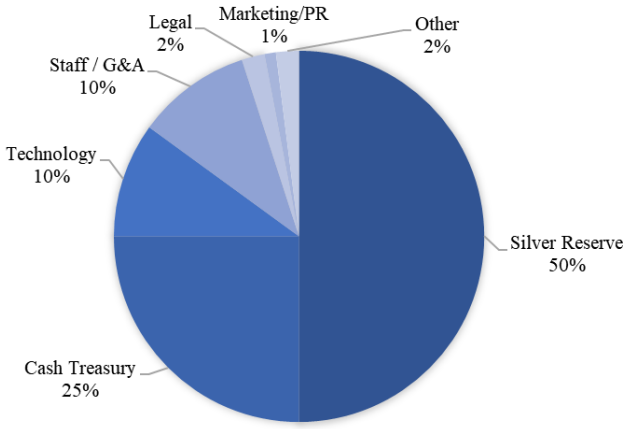
Allocations

Allocation of Funds

This paper aims to set the foundation for CrowdPoint to raise the required *Development* and *Growth* capital by the end of Q1 2023. The type, purpose, and allocation of funds are as follows:

Exhibit 7

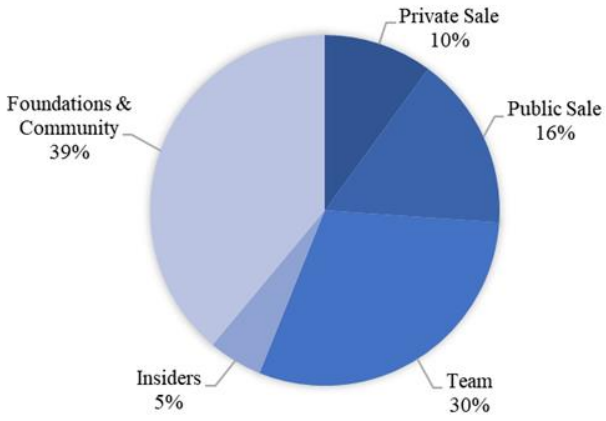
Silver Reserve	$	50,000,000
Cash Treasury	$	25,000,000
Technology	$	10,000,000
Staff / G&A	$	10,000,000
Legal	$	2,000,000
Marketing/PR	$	1,000,000
Other	$	2,000,000
Total	**$**	**100,000,000**



Allocation of Tokens

CrowdPoint has divided a total of 100 billion crwd**units** into the following distinct categories:

Exhibit 8



[*Continues*]

Leadership Team

Mr. Sean M. Brehm
Founder, Chairman, and Chief Executive Officer | CrowdPoint Technologies

Mr. Sean Brehm enjoys 25+ years as an entrepreneur, corporate executive, military officer, and technologist and is a luminary in the technology industry. He has expertise in big data, artificial intelligence, and cybersecurity and has received numerous industry awards and military citations.

Before founding CrowdPoint, Mr. Brehm founded and led Gradient Cyber (previously @Risk Technologies), a leading cybersecurity network operations management and managed detection and response (MDR) solutions provider. Under Mr. Brehm's leadership, Gradient developed its award-winning Quorum platform in conjunction with the U.S. Department of Defense.

Previously, Mr. Brehm served as President of Information Systems at Atigeo Corporation; a big data analytics company focused on the healthcare, cyber, defense, energy, and financial services sectors. Mr. Brehm joined Atigeo when the company acquired YaData Solutions, a company founded and led by Mr. Brehm. YaData's customer base included the Departments of the Air Force, Army, Navy, the United States Marine Corps, the Department of Defense, and the Intelligence Community. Notably, YaData delivered analytic platforms that leveraged IBM Technology with operational integration. Mr. Brehm's vision with YaData was to focus on analytics and transition defense customers to a big data platform as a service.

Mr. Brehm also worked for IBM, selling cross-brand solutions to the U.S. Intelligence, Global Combatant Commands, and the U.S. Special Operations Command. In this role, he excelled at translating the complex domains of combat operations, intelligence, and counter-terrorism into actionable intelligence. While his peers in the commercial market were discussing the future of big data scalability, Mr. Brehm was designing, developing, and deploying big data analytic platforms. He analyzed over eight petabytes of data while fusing social media, publicly available data, and global cyber data into an exceptional user experience depicting user-defined operational pictures that saved lives.

In the past, Mr. Brehm served in various capacities at Intel Corporation, including in operations and photolithography, as well as six sigma efficiency implementations in Santa Clara, Chandler, and international locations. Mr. Brehm was recognized with various awards and led the Leadership for Manufacturing with SEMATECH, Stanford, and other universities worldwide.

In addition to the preceding, Mr. Brehm's career includes professional science and technology consulting experience for global industries in Asia and Europe.

Mr. Brehm's professional career began in the U.S. Army as an Airborne Ranger Infantry Officer with global combat operations while receiving assorted citations, qualifications, courses, and training supporting global specialized operations. Mr. Brehm retired from the U.S. Army as a Major Promotable.

Mr. Brehm is an Honor Graduate of the U.S. Army Ranger School. Additionally, Mr. Brehm received a bachelor's degree from the University of Colorado, where he was the ROTC George C. Marshall Distinguished Military Graduate.

Mr. Brehm currently holds an active DoD Top Secret/SSBI security clearance.

Mr. Nadab U. Akhtar
Co-founder, President, and Chief Operating Officer | CrowdPoint Technologies

Mr. Nadab Akhtar enjoys 15+ years of experience as an entrepreneur and investment banker, including nearly a decade in corporate advisory and M&A transaction experience.

By way of background, Mr. Akhtar served as Chief Operating Officer of Nexus Health Capital; a leading boutique investment banking firm focused on middle-market companies. Nexus has been responsible for several billion in aggregate transaction value since 2015.

Previously, Mr. Akhtar served as a Limited Partner and Advisor with Trinity Blockchain Management, a cryptocurrency-focused hedge fund. In addition to the previous, Mr. Akhtar is a Principal of Apollyon Group, a private investment firm interested in the technology, government, retail, and real estate industries. Furthermore, Mr. Akhtar serves as an Advisory Board Member with Metropolitan Dream Center, a non-profit organization impacting Dallas, Texas's homeless and indigent population.

Mr. Akhtar holds a BBA from Hankamer School of Business at Baylor University, where his studies focused on finance and chemistry.

Mr. Eraj Akhtar
Co-founder and Chief Futures Officer | CrowdPoint Technologies

Mr. Eraj Akhtar enjoys 15+ years of experience as an entrepreneur. By training, Mr. Akhtar is a social scientist who grasps the intricate overlapping worlds of human behavior and mathematics.

Mr. Akhtar has a keen business sense stemming from his deep operational background. In the past, he has had both Fortune 500 and startup experience in the consumer retail and enterprise technology spaces. In approaching the challenges of growth organizations, he employs First Principle TTPs to break down large-scale problems into manageable components resulting in deliverable solutions and commercial success.

After completing his undergraduate program, Mr. Akhtar spent several years founding and growing award-winning companies and has had multiple successful exits. While managing and growing his organizations, he saw a common theme: siloed data is the enemy of innovation and growth. He learned that identifying process efficiencies, targeting disparate audiences, and recognizing emerging trends are crucial to building an impactful, enterprise-grade company.

A core focus of Mr. Akhtar's professional and intellectual passions is furthering insights into the information humans produce during interactions with each other, their networks, and the world at large. A data-driven creative, he is acutely intrigued by constructs that build long-term, multi-dimensional social systems. Mr. Akhtar founded ApollyonX, a company that is advancing big data intelligence technology in support of the defense and national security apparatus of the United States. Mr. Akhtar leverages his policy and social sciences background to guide ApollyonX's development of sophisticated data and strategy models that conceptualize societies and stochastic processes. Mr. Akhtar's vision with ApollyonX is to utilize cognitive computing, social, and behavioral data to solve some of the world's most challenging problems.

Mr. Akhtar studied at the University of Texas at Dallas, earning his bachelor's in political science, where his core areas of study were law, national security strategy, and nation-building. He continued with graduate studies for his master's in artificial intelligence at Harvard University.

Additionally, Mr. Akhtar is a graduate of the Founder's Academy and The Leadership Institute. He is an active member and participant of the Capital Factory, World Affairs Councils of America, Harvard Club, and the National Defense Industrial Association. He remains involved in the community by volunteering with the Metropolitan Dream Center and the United Christian Church.

Dr. Wolf Kohn
Chief Scientist | CrowdPoint Technologies

Dr. Wolf Kohn leads research and innovation for CrowdPoint and the blockchain ecosystem's new digital economy through bleeding-edge fields of study in blockchain artificial intelligence.

Dr. Kohn holds 25 patents and has authored four books and over 300 papers in optimal hybrid control and quantum control, estimation and learning systems and architectures; he received M.Sc. and Ph.D. degrees in electrical engineering and computer science from the Massachusetts Institute of Technology. He is the foremost thought leader in distributed, nonlinear dynamical systems and control theory.

A significant focus of Dr. Kohn's research and career has been energy management and battery optimization. He brings this wealth of knowledge in these areas and more to CrowdPoint, where he integrates his innovative research into the company's proprietary blockchain.

Dr. Kohn joined CrowdPoint from Veritone, Inc. (NASDAQ: VERI), a leading provider of artificial intelligence (A.I.) technology and solutions, where he served as Chief Scientist. Dr. Kohn continues to serve Veritone as its Technical Advisory Board member. Before Veritone, Dr. Kohn served as Chief Scientist of Atigeo – the A.I. arm of Microsoft. Veritone acquired Atigeo in 2017. Previously, Dr. Kohn held numerous leadership positions with notable companies, including Lockheed Corporation, Citi Group, SEQA Capital Advisors, LP, Clearsight Systems, and Kohn-Nerode, Inc.

Dr. Kohn recently joined the faculty of Drexel University. Previously, Dr. Kohn served as a Professor at the University of Washington, Stanford University, and Rice University.

Mr. Daniel J. Guinan
Chief Technology Officer | CrowdPoint Technologies

Mr. Daniel Guinan enjoys 25+ years as an entrepreneur, corporate executive, and technologist. Mr. Guinan has designed and built cryptocurrency systems, artificially intelligent robotic trading systems, application servers, database engines, ad-scale infrastructure, and highly complex self-organizing object-oriented frameworks.

Mr. Guinan has founded several successful technology companies; most recently, Mr. Guinan founded Cebu Machine Intelligence Laboratories, Inc., which is a research lab and outsourced consultancy based in Cebu, Philippines. The company acquired Trust Labs, a privacy-focused technology company, in 2011; Mr. Guinan was integral in the acquisition's integration.

Mr. Guinan began his career with Visa International, where he was critical in developing cryptographic commerce systems such as Secure Transaction Technology and Secure Electronic Transactions.

Following Visa, Mr. Guinan joined Sun Microsystems, serving as the Chief Architect and Engineer of Java Commerce. While at Sun Microsystems, he was instrumental in developing the Java Commerce Framework, Java Wallet, Java Card, and Java Smartcard. Additionally, Mr. Guinan built one of the first cryptocurrencies, Java Coin. Java Coin was never released to the public but was built and working ten years before Bitcoin with an almost identical transactional model.

Mr. Guinan then founded nanobiz; a company focused on cryptographic technologies in XML. Mr. Guinan successfully sold the company to Verisign in 2000. He then served as Director of XML Web Services at Verisign.

Mr. Guinan then founded RedShores, Inc., and GeneWaves. The companies focused on automated payment and access control for web services and automated trading technologies, respectively.

Mr. Guinan received his Master of Computer Science from the University of Nebraska – Lincoln, where he researched artificial intelligence, fuzzy logic, and fuzzy set theory.

Mr. Andrew ("Andy") Barkett
Chief Architect | CrowdPoint Technologies

Mr. Andrew Barkett enjoys 20+ years of engineering and management experience with expertise in software architecture, distributed systems, and hyper-scale data centers. He is an active investor and advisor to numerous startups.

Mr. Barkett currently serves as Chief Technology Officer of Korbitt, an innovative company transforming education with AI-tutors.

By way of background, Mr. Barkett previously worked for both Google and Facebook. Mr. Barkett went to work for Google in 2006. While at Google, Mr. Barkett was a technical program manager for two years. During that same period, he co-founded Greenlight Apparel, a fair-trade, organic clothing company.

Following his role at Google, Mr. Barkett served as a senior I.T. management consultant at Taos Mountain Inc. for several months, then as a senior director for engineering at Livescribe Inc. for almost two years. Subsequently, Mr. Barkett joined Facebook in January 2011 and managed engineering teams responsible for scaling the social network's mobile infrastructure, messaging, and News Feed products.

Before joining Google and Facebook, Mr. Barkett was a software engineering manager at OnWafer Technologies (acquired by KLA-Tencor Corp. in 2007), which manufactures lithography and plasma etch products for the semiconductor industry.

Mr. Barkett earned a political economy degree from the University of California, Berkeley, in 2002 and an MBA from UC Davis, in 2009.