Skycoin

Business Whitepaper

Edition 1.2

The following White Paper consists of information given for discussion purposes only and does not represent investment advice of any kind. Further, it does not constitute an offer to sell shares or securities nor does it constitute a solicitation to buy such shares or securities. None of the information found within is intended to influence any investment decision nor should it be the basis of an investment decision of any kind. Investment advice for investment in any security, or any tax or legal advice should only be given by an investment advice firm, and Skycoin is not an investment advice firm. Skycoin encourages readers to seek appropriate and independent professional advice to inform themselves of the legal requirements and tax consequences of any investments they make, both within Skycoin and within the blockchain industry as a whole. Investments should only be done with the help of an independent financial advisor within context of the countries of their citizenship or residence, and their place of business with respect to the acquisition, holding or trade in Skycoin or any other tokens. Please note that this White Paper does not constitute an offer to sell, or the solicitation of an offer to buy, for any person for whom it may be unlawful to participate in a token sale. Those for whom it is unlawful to participate should not participate. Consult with your own lawyer or accountant to determine whether it is lawful for you to participate in this token sale. This White Paper should in no way be construed as being intended to create a contract for investment. This White Paper (edition 1.0) may be revised, with the newest edition always appearing on our website. For each revision cycle, we will provide notes on what has changed the justification for the change. Updated versions of the White Paper (as indicated by consecutive edition numbers) may contain information which may override, clarify or contradict previous editions, in which case the latest version should be considered the most accurate and up to date. Because of this, versions which are found outside of the official Skycoin website may contain out-of-date or inaccurate information. The most up-to-date version of the white paper can be located online at Skycoin.net.

Archived copy - cryptonova.com

Table of Contents

Skycoin Project Overview 2
Introduction 3
Project History 5
Skycoin 6
Features 6
Supply And Distribution 7
Obelisk 7
Problems In Bitcoin & Other Methodologies 7
The Solution: Obelisk Consensus Algorithm 8
Coin Hours 10
Skywire: The Next Internet 12
The Need For A New Internet 12
Skywire Overview 13
Skywire/Meshnet Diagram 14
Communication Protocol 15
Payment Protocol 16
Skyminer Hardware Platform 16
Technical Specifications For V1 Skyminer 16
Application Ecosystem 17
Fiber 17
CX/CXO Development Framework 18
Skysuite: Native Applications 18
CXO Diagram 19
Skywire Adoption Plan 22
Team | Founders 24
Team | Key Investors And Advisors 25
Appendix 26
Resources 26

CRYP2NOVA

Archived copy · cryp2nova.com

Skycoin Project Overview

Skycoin is an entire ecosystem where cryptocurrency is only part of the story. The rest includes the elimination of mining rewards, development of energy-efficient custom hardware, the realization of transaction speeds that rival the likes of Visa, and the advancement of a more secure and private Internet alternative.

These achievements are a result of the 5 robust components core to the Skycoin ecosystem:

Skycoin: fast and secure currency backed by bandwidth.

Skywire: anonymous, decentralized mesh-Internet.

Skyminer: hardware and access point for Skywire.

Fiber: decentralized open blockchain network.

Skysuite: suite of decentralized applications.

Architecture Overview

Component		
Skycoin	REPO	Bitcoin
CX	REPO	Ethereum
CXO	REPO	IPFS, FileCoin, Bittorrent, Mega, Dropbox, Google Drive
Skywire	REPO	MPLS, IPv4/IPv6, OpenFlow, Tor, I2P
Sky-Messenger	REPO	Tor, Telegram, Skype, Wechat, WhatsApp
BBS	REPO	Steemit, 4chan, Facebook, Twitter

This whitepaper describes the Skycoin ecosystem and how these five pillars fulfill the promise of decentralization and more. Enabling businesses and individuals worldwide to safely and securely adopt blockchain technology.

Archived copy · cryp2nova.com

Introduction

Centralization *(Web 2.0)*

Web 2.0 created the internet servicer provider, delivering ultra fast internet to over 225 million people. This created sharing economies such as Uber, Airbnb and Ebay, allowing global commerce and distribution as never before. The Internet gave way to seemless payments through the advent of Paypal and other e-wallets, allowing instant transactions and global remittance at the touch of a button. These are all great things, but for one major flaw... Centralization of power.

Decentralization *(Web 3.0)*

Skycoin picks up where existing protocols left off. Implementing a fast, scalable and truly decentralized blockchain platform that makes Web 3.0 a reality. Freeing us from high internet bills, the control of information and invasion of privacy by governments and corporations.

Skywire

Skywire and its privacy protocol users are provided with a cheaper, faster, user-controlled Internet in which they are rewarded for providing bandwidth to other users. Skywire is a net neutrality resolution and tool for private browsing that cannot be traced or controlled by third parties.

Fiber

Fiber allows anyone, anywhere to benefit from the next generation of decentralized applications with lightning fast speed, stability and infinite scalability.

Skycoin

Skycoin makes free, decentralized payments possible within seconds, allowing truly decentralized global remittance at speeds that could rival any established payments network or e-wallet. Skycoin is creating the first fully scalable, protocol for the next generation of decentralized apps, services and payments.

To ensure stability within the ecosystem, Skycoin holders receive a second currency called Coin Hours.

Skycoin also has fully functioning software and hardware outside of its existing core components. Skycoin wallets transact seamlessly. Fiber adoption grows on a daily basis. The first generation of hardware has already been built, with further generations of the various components already in production.

Archived copy · cryp2nova.com

Project History

What started as an audit into Bitcoin's volatility, grew into six years of writing *(and rewriting and rewriting)* to resolve issues such as duplicate Coinbase outputs, signature immutability, transaction immutability, and the most critical: Bitcoin's consensus algorithm *(Proof-of-Work, or PoW)*.

At the time, through PoW, miners competed to add the next set of transactions, or block, in the chain of blocks by racing to solve a difficult cryptographic puzzle. The first miner to a solution received a reward and transaction fee. Whereas many lauded and profited from this system of proof, the auditing team could only see red flags. Bitcoin's enormous computational energy requirement centralized the majority of mining to areas of the world where electricity was cheap.

One group in particular grew out of northern Ukraine and formed an entire Bitcoin industry—equipped with mining pools, hardware, and exchanges—that gave way to GHash.io, a mining pool that would come to control over 60% of total mining power *(Noble, 2014)*. This is only one instance. The current state of "decentralization"—three major mining pools all based in China *("10 Best and Biggest Bitcoin Mining Pools", 2017)* and a single producer of Asic mining hardware—was not Satoshi Nakamoto's intention.

As the Skycoin team began their earliest work researching ways to resolve the PoW algorithm, another conflict over centralization heightened—the fight for net neutrality. Internet Service Providers *(ISPs)* controlled the Internet's physical architecture and could restrict quality of service for network users based on variable or tiered pricing. In addition, ISPs had the power to exploit customers by selling their information to third parties *(e.g. location, browsing history, contents of unencrypted messages, etc.)*. This remains true even today.

Net neutrality and PoW are outwardly two different issues, but Skycoin's team saw the same fundamental flaw: a system prone to centralization. The research and development for Skycoin would eventually lead to critical foundations for Skywire, a truly decentralized mesh-Internet that frees users from ISP dependence.

Today's Skycoin Project has deployed multiple innovations *(e.g. Skycoin, Skywire, Fiber, etc)* under the hands of 15 development teams worldwide. While still growing, 2018 is the year Skycoin intends to make its formal introduction to the public.

Archived copy · cryp2nova.com

Skycoin | Features

The Cryptocurrency Powering Web 3.0

The Skycoin Project is one of the oldest crypto projects in development, and Skycoin is its first creation. Built as an infrastructure project rooted in the founding concept of decentralization, Skycoin runs on a completely different consensus algorithm, "Obelisk" or a "web-of-trust." With Obelisk, Skycoin is not susceptible to the weaknesses of PoW and Proof-of-Stake *(PoS)*



Lightning Fast
Transactions take as little as 2 seconds. With no bottlenecks or fees, Skycoin is faster than other cryptocurrencies and competitive with credit cards and Apple Pay.



Zero Fees
Skycoin transactions cost Coin Hours, a separate currency paid to Skycoin holders for each hour they hold a coin.



Secure
Built from the ground up in Golang, Skycoin makes full use of time-tested cryptographic standards to ensure transactions can't be tampered with. Skycoin renders useless such threats as 51% attack, reversal, duplication, and malleability.



Private
Skycoin's transaction structure was designed to seamlessly adopt the CoinJoin protocol. Once integrated, Skycoin mixes transactions from multiple wallets to ensure they are indistinguishable from one another.



Sustainable
Without the enormous computational energy requirement typical of PoW and PoS processes, Skycoin can run on a 30-watt cell phone processor.



Incentivized
Skycoin is more than a cryptocurrency. It derives inherent value from the Skywire mesh network. Users earn and use Skycoin for providing and consuming network resources.



Utility Backed
Skycoin's practical application means it is backed by a real asset: bandwidth.

Archived copy · cryp2nova.com

Supply & Distribution

Skycoin is immutable. The total supply is capped at 100 million, and coins cannot be created or destroyed. Distribution is an open process. As more coins reach the public, the rate of distribution will slow. This approach puts Skycoin in the hands of users and community members instead of miners and speculators.

Our mission is to create a new and better future for the internet through the Skywire network. Unowned distributable coins will go into supporting long-term network growth *(e.g. subsidizing more users to build nodes)*. Because of this growth-oriented approach, Skycoin does not need a large upfront fund. At the time of writing, there are 75 million undistributed Skycoin, and they cannot be distributed until the first 25 million *(25%)* have been distributed. For every year after the first 25% are distributed, another 5% unlocks.

Distribution beyond the initial 25% is hard-coded into protocol and time-locked so that coin distribution stays below the 5% maximum. By creating a hard-coded, time-locked distribution policy, Skycoin ensures several things: a fair process that does not deviate from the team's original intent, a rate of distribution aligned with user growth, and the protection against inflation.

Obelisk

Obelisk, Skycoin's unique consensus algorithm, is central to the entire Skycoin infrastructure. Web-of-trust consensus changes the way we understand and use blockchain technology. It removes the need for costly mining resources, eliminates the vicious cycle of mining incentives, exponentially improves transaction speeds, and delivers greater security.

Bitcoin's Problems and the Weaknesses in Proof-of-Work

In Bitcoin's early programming, there was a fundamental miscalculation that the mining process would produce an economic incentive structure conducive to decentralization. Instead, PoW has concentrated influence among mining pools that can supply the resource intensive miners with cheap power. These same groups of influence can orchestrate widespread changes to the network *(e.g. forks)*.

Satoshi Nakamoto himself identified mining-control as the biggest non-cryptographic threat to the Bitcoin network due to the possibility of 51% attacks when more than 50 percent of the hashing power is confined to one actor.

Archived copy · cryp2nova.com

This also implies that the operation of the network is both economically and environmentally inefficient. According to Energy Researcher Sebastiaan Deetman *(2016)*, "If the Bitcoin network keeps expanding…it could lead to a continuous electricity consumption…[equivalent to] the total consumption of…Denmark by 2020." The continuous input of processing power required by the mining process also incurs monthly costs in the tens of millions. There is little sustainability.

The enormous mining costs can only be offset by exponential influxes of new capital and new users. However, few coins outside of Bitcoin and Ethereum have the rapport to sustain such growth.

The Centralizing Tendency of Proof-of-Stake

Although PoS algorithms tackle the security issue of 51% attacks, they are arguably even more vulnerable to centralization than PoW networks. With PoS, the size of a participant's holdings of the particular cryptocurrency *(or "stake")* determines their voting power for technical changes in the network. Participants also get to mine a portion equivalent to their stake regardless of processing capability.

This principle significantly increases the economic barriers to launching a 51% attack. The financial cost of acquiring the majority of a network's tokens in the open market likely exceeds the potential gain. Furthermore, if an attacker successfully becomes the majority stakeholder in the network, they will suffer most from the attack due to impact on network stability and market response.

Although it raises the barrier to human-led attacks on the network, PoS creates a centralizing impulse equal to PoW. With PoW, voting on the implementation of technical changes to the network "is divided among miners, developers, and other crucial members of the community," *(Young, 2016)* whereas a PoS system gives "major stakeholders…a technical ability to make any changes they like without considering the will of the community, businesses, miners and developers. This centralization of voting power and, essentially, control of the network defeats the purpose of a distributed ledger-based cryptocurrency since it contradicts its entire principle of distributing all elements within the network to avoid the presence of a central authority." *(Young, 2016)*.

The Solution: Obelisk – Distributed Consensus Algorithm

To tackle this centralization problem, Skycoin uses a distributed consensus algorithm, Obelisk. Obelisk distributes influence over the network according to a web-of-trust. Instead of miners, the web consists of nodes *(e.g. computers, Skyminers, etc.)* and each node subscribes to a list of trusted nodes. Nodes with more subscribers hold more influence in the network.

Archived copy · cryp2nova.com

Each node is assigned a personal blockchain that acts as a "public broadcasting channel," where its every action is publicly recorded and visible. As all consensus decisions and communication occur through the personal blockchains of each node, the community can easily audit nodes for cheating or collusion—without compromising privacy. The nodes are addressed by their cryptographic public key and a node's IP address is only known to the nodes it is directly connected to. Furthermore, there are no fixed ports and no known plain text in wire format.

The public record left by each node's personal blockchain allows the network to react to defections by severing connections with less trustworthy or malicious nodes. Under the same principle, if the community feels that power within the network is too concentrated *(or not concentrated enough)*, the community is able to shift the balance of power by collectively changing their trust relationships.

The accountability of nodes to the community and 3rd party audits as well as the transparency of consensus strengthens collective decision-making, and introduces a highly democratic and decentralizing element to the network.

(See Appendix for further reading and technical proof.)

Obelisk's Consensus Solutions

High scalability and low energy consumption

The consensus algorithm was designed to be a scalable and computationally inexpensive alternative to PoW, enabling both the algorithm and block-making to run on budget hardware. Centralization becomes more difficult when more people have access.

CRYP2NOVA

Robust defense against coordinated attacks

Obelisk can withstand a large-scale coordinated attack by a well-organized network of malicious nodes. The algorithm is non-iterative, converges fast, can run on a sparse network with only nearest-neighbor connectivity *(e.g. on a mesh network)*, and works well in the presence of cycles in the connectivity graph *(i.e. DAG-type connectivity is not required)*.

Protecting against the "51-percent Attack"

Web-of-trust consensus prevents the development of centralized power. Skycoin does not rely on mining incentives, and therefore is not susceptible to the same PoW/PoS vulnerabilities.

Archived copy · cryp2nova.com

In the unlikelihood that enough resources have been pooled to disrupt the network, it will have little effect on network users. The intruder would still need the private key of someone in the transaction chain to do any damage. There is no transaction malleability in Skycoin. In addition, the public record on each node, including intruders, ensure its swift severance from the network upon detection.

Hidden IP addresses
The nodes are addressed by their cryptographic public key. A node's IP address is only known by the nodes it is directly connected to.

Independence of clock synchronization
The Algorithm does not use "wall clock" *(i.e. calendar date/time)*. Instead, block sequence numbers extracted from validated consensus and blockchain related messages are used to calculate a node's internal time. This can be informally called "block clock."

Two type of nodes exist: Consensus and Block-Making
A Consensus Node receives its input from one or more Block-Making nodes. The algorithms are separate for each, but they both operate on the same data-structures. Both type of nodes always perform authorship verification and fraud detection of incoming data. Fraudulent or invalid messages are detected, dropped, and never propagated—peer nodes engaged in suspicious activities are severed, and their public keys are banned.

Coin Hours

Skycoin transactions do not incur fees. Transaction fees, similar to block rewards that incentivize miners to drive up fees at the cost of the network, only create monetary incentives with adverse effects by eliminating transaction fees.

Instead, Skycoin transactions cost Coin Hours—not Skycoin. To earn Coin Hours, users simply hold Skycoin in order to participate in the ecosystem of Web 3.0. For each Skycoin held by an address per hour, its owner nets 1 Coin Hour. Therefore, holding 1000 Skycoin for 1 hour generates 1000 Coin Hours.

Beyond transaction fees, Coin Hours increase transaction privacy within the Skycoin CoinJoin infrastructure by acting as collateral for mixing. This prevents participants from backing out of or slowing down CoinJoin transactions.

Archived copy · cryp2nova.com

To prevent inflation and support fair use, only a maximum 100 million Coin Hours are produced each hour. Each transaction will burn 50% of the accumulated Coin Hours attached to the coin outputs being spent by the transaction, rounded up. This creates scarcity and limits the number of Coin Hours in circulation to an equilibrium value.

Hardware Wallets

Hardware wallets are physical electronic devices designed to securely store cryptocurrency funds. They are designed to isolate private keys from online environments; a hacker would have to physically take the device to access the private keys. Multiple options at various price points currently exist to support different cryptocurrencies and user preferences.

Skycoin believes that hardware wallets are the most secure means to storing coins. In order to maximize adoption, Skycoin will soon be supported by several popular hardware wallets in addition to producing its own. The Skycoin hardware wallet will support dozens of alternative coins as well as the ones on Fiber. This is on top of the convenience already provided by Skycoin mobile and desktop wallets.

CRYP2NOVA

Archived copy · cryp2nova.com

Skyminer

The Need For A New Internet

The Internet has long been a tool for personal empowerment and a platform for business innovation. However, the Internet today has not scaled to meet the needs of businesses and consumers.

At the very basic level, more than half of the world is offline *(Taylor, 2016)* due to a lack of infrastructure as well as the cost barrier to connectivity and devices. However, when 767 million people survive on less than $1.90 USD per person per day *(poverty and shared prosperity 2016, 2016, p. 3)*, it is the market that has determined who gets access and who does not. Because consumers have to pay the prices that Internet Service Providers *(ISPs)* dictate, the market has done its work connecting wealthier nations, where an argument for revenue can easily be made.

As persuasive as the revenue opportunity is in developed nations, that does not mean Internet access comes unrestricted. Network users and ISPs have long had a contentious relationship—providers make the rules, and consumers pay to obey them. Recent events have culminated in the repeal of net neutrality, followed by plenty of public protest. Yet regardless of whether consumers successfully fight the repeal or not, it does not change their dependence on ISPs for a vital service.

Even businesses, bodies that sit at the very top of the revenue argument, have voiced their dissent. However, businesses face another issue with the existing Internet. As leaders at the forefront of emerging technologies, their ambitions are bound by the limitations of bandwidth and quality of service *(QoS)*. Use cases include:

- Mobile Augmented Virtual Reality
- Autonomous vehicles
- Internet of Things *(IoT)*

Networking capability is one of the last remaining barriers preventing adoption of these and other emerging technologies. Bandwidth requirements will continue to rise as media standards increase in quality and as more devices become connected. Latency, redundancy, and other QoS considerations will become ever more important to ensure operational safety as IoT technology plays a more critical role in human life.

Archived copy · cryp2nova.com

History has shown an inevitable cycle of innovation. When a service cannot meet the needs of those they serve, consumers will eventually respond in kind. Necessity is the mother of innovation and few things are more necessary now than a new, decentralized internet—Skywire.

Skywire's minimal requirements lower the barrier to entry. Its state as a decentralized mesh network means privacy, security, and independence. Its speed and adaptability creates boundless room for innovation. But more importantly, Skywire distributes the power long held by a small central body.

Skywire Overview

The Skywire project aims to create an incentivized mesh network that is faster, more affordable, more accessible, and offers higher QoS than the current Internet.

For a mesh network to meet these goals, it must have a:

Communication Protocol
that avoids the limitations of Transmission Control Protocol/Internet Protocol *(TCP/IP)* communication protocols.

Payment Protocol
that compensates operators for the resources they provide to the network.

Hardware Platform
capable of spanning the last mile and providing the networking, storage, and computing resources needed to scale the network.

Application Ecosystem
that drives adoption of the network and demand for network resources.

The Skywire team has spent nearly four years developing robust solutions to meet these requirements. Skywire's routing and payment protocols are ready today. First generation hardware units are complete and have shipped to consumers. Development of applications *(both third-party and native)* is in full swing. All of the pieces are in place and Skywire is ready to build the next, better Internet.

Archived copy · cryp2nova.com

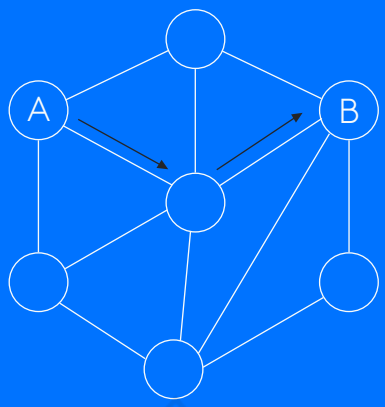
Skywire/Meshnet

Client runs VPN client

All client traffic is tunneled through TUN/TAP adapter

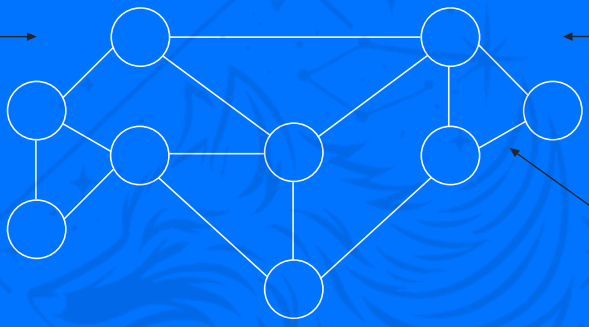
VPN client connects to server over skywire

source routing avoids hot potato BGP routing and allows route selection by DOS criteria



VPN Tunnels traffic back to legacy IP4/IP6 internet

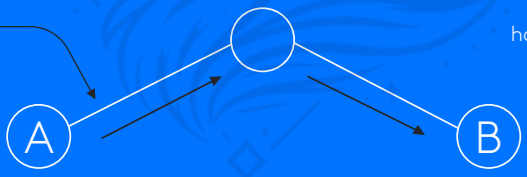
Skywire nodes are identified by their public key



Skywire nodes are connected over a fixed, mesh, point to point topology

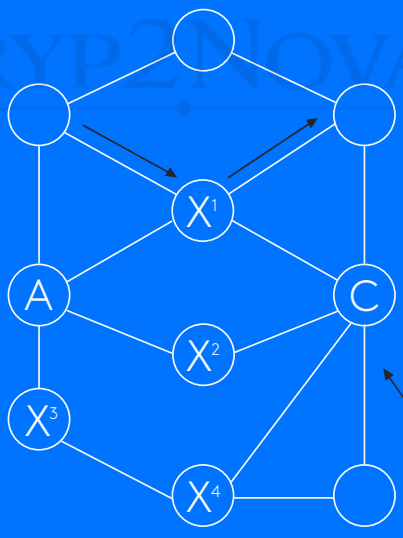
A connection between nodes is called transport

Nodes can initiate packet forwarding rules, called a route. R: **A > B > C**.



Multi-hop data transmission helps to prevent resource exhausting attack, such as DDoS. Nodes use Skycoin to acquire, retain and ration network resources.

Nodes receive or consume coins based upon their usefulness and balance of resources consumed and produced.



Scale invariant. Operates at multiple length scales. Countries, cities, factories to internal home networks and Internet of Things *(IoT)*.

Network is source-routed and supports multihoming

Network supports different routes to meet application quality of services *(QoS)* requirements.

Skycoin applications run on their own network and use independent namespace.

Nodes can initiate packet forwarding rules, called a route. R: **A > B > C**.

R: A > X1 > C

R: A > X2 > C

R: A > X3 > X4 > C

CRYPTONOVA

Archived copy - cryptonova.com

Communication Protocol

Almost all Internet traffic today uses the Transmission Control Protocol/ Internet Protocol *(TCP/ IP)* communication protocols. These protocols are over 40 years old, and are not well suited for a mesh network. TCP interprets any packet loss as a signal of network congestion and automatically scales back connection speed to alleviate congestion. Additionally, IP-based routing is slow and computationally expensive due to each node having to independently look up where to send the packet next.

The Skywire communication protocol uses Multi-protocol Label Switching (MPLS) techniques to enable highly-scalable and high-performance transport of any data across any medium. With MPLS, routes through the network are determined prior to sending traffic. Outbound packets receive nested labels that describe their route through the network. When a node receives a packet, it simply reads the outermost label and takes the corresponding action. This requires vastly less computational effort than IP routing table lookups.

The current Internet incentivizes ISPs to dump their traffic onto other networks as soon as they can through so-called "hot potato routing." This is good for ISPs but not good for traffic sent over the network. Hot potato routing can lead to greatly increased latency due to the increased number of hops. Skywire circumvents this issue completely. Source nodes using Skywire will always prefer to send their traffic over routes with low latency, cost, and hop count. This creates an economic incentive for an efficient network topology because the rewards for operating a node scale with the amount of traffic forwarded. Additionally, source nodes have complete control over routing and can modify routing protocol to suit their needs. Common scenarios include:

- Optimizing for lower latency network paths for VOIP or gaming
- Optimizing higher throughput network paths for video and file sharing
- Bundling routes for redundancy, reduced latency and throughput

Skywire's communication protocol also provides privacy and security advantages over TCP/IP. Each node on a packet's route can only see the previous hop and the next hop for that packet—not the source, destination, or content. This is a significant improvement over IPv4, where anyone handling a packet can see both the destination and source. Nodes on the Skywire network are uniquely identified by their public key hash instead of IP address. This renders man-in-the-middle attacks impossible since a source node can verify the authenticity of the destination through its public key.

CRYP2NOVA

Archived copy · cryp2nova.com

Because Skywire is end-to-end encrypted, those who host traffic will not know what the traffic is. In comparison, a similar concept exists in hosting a TOR exit node. However, a TOR exit node will store copies of the data on the host's system, leaving the host vulnerable to unfavorable legal situations. If a node is suspected of malicious activity, it can be blacklisted and therefore banned from reconnecting to the host.

Payment Protocol

All current Internet alternatives have one critical flaw: they are operated by unpaid volunteers. This leads to situations where the majority of users access network resources without providing anything in return. Skywire solves this problem with its embedded payment protocol. With this protocol, every node effectively acts as a micro-ISP capable of automatic metering, billing, and settlement.

Nodes want to forward traffic and receive subsidies *(i.e. Skycoin and Coin Hours)*. This is the equivalent of "mining" in Skycoin and how many users will earn their first coins. Each node on a route records the volume of traffic it relays and the origin node records the volume of traffic it sends. Bandwidth payments are automatically and periodically settled through a blinded escrow system.

The origin node holds coins in escrow with a third party. A pseudonym account is created with the third party. Each node can verify the reputation of the origin and its payment ability through the third party, without learning the identity of the party. From the third party's perspective, all nodes will appear as multiple unlinked pseudonym accounts.

Small transactions will be settled internally, in off-blockchain transactions. The off-blockchain transactions can be withdrawn into a newly generated, never-before-used address once the balance exceeds a threshold *(currently 1 Skycoin)*. This reduces blockchain bloat and encourages micro-transactions to be performed off-blockchain.

See Appendix for additional information on Skywire.

Archived copy · cryp2nova.com

Application Ecosystem

Fiber

Fiber is a launchpad for scalable, secure, and decentralized applications by 3rd parties—a necessary solution as more businesses seek to adopt blockchain architecture. With better speed, better security, and better privacy, blockchain can finally reach its potential as a reliable, lightning-fast, versatile foundation for modern business.

Through Fiber, each coin has a separate blockchain that is fully customizable to their needs and equipped with all the benefits of Skycoin technology:

- Low energy consumption
- Near-instant transaction times
- No transaction fees

Because each company has their own blockchain, they do not face the congestion issues seen on platforms such as Ethereum's ERC-20. This removes limitations that currently prevent many businesses from embracing blockchain technology. For example, energy companies are legally bound to stringent operation guidelines *(e.g. transaction speeds, reporting, metering, etc.)* .As both a business value and legal obligation, they cannot risk operations grinding to a halt due to traffic from unrelated organizations. With Fiber, this issue is completely avoided.

Companies have already begun adopting Fiber as the foundation for their blockchain solutions:

Spaco

Spaco is a decentralized service built on Fiber, running storage and data transfer, a peer-to-peer encrypted Internet browser with built in anti-spam and versatile user-controlled feed filtering, as well as secure future applications in custom site-creation, shopping, games, video, and much more.

MyDailyLife *(MDL)* Talent Hub

MDL aims to build a trustchain for the $2.3 trillion entertainment industry. The MDL platform features a unique prosumer-based ecosystem marketplace and micro-KOL *(Key Opinion Leader)* partnership programs to raise revenue.

Archived copy · cryp2nova.com

CX/CXO Development Framework

The Skycoin ecosystem includes its own programming language and immutable object system. These provide the foundation for application logic and data distribution on the Skywire network.

CX Programming Language

The CX programming language was developed by the Skycoin team as a deterministic language that can build more than just smart contracts, while also providing greater security and versatility. CX can be used to create decentralized applications, video games, and program FPGA chips. For technical audiences, a detailed overview of the language can be found on the Skycoin blog *(see Appendix)*.

CX Object System *(CXO)*

The distributed content sharing protocol CXO enables peer-to-peer replication of structured data that can only be modified by the publisher. With CXO, a publisher creates a data feed and signs it with their private key. Other nodes can subscribe to this data feed, making it available to the broader network. Other nodes however cannot alter the data feed without the publisher's private key, and therefore ensuring data integrity can be trusted even if the file is not directly downloaded from the publisher's original node.

In effect, CXO combines the immutability associated with blockchain and the scalability of a content distribution network *(CDN)*. This is useful in cases where content needs to be easily available and verifiable, but not necessarily stored on the blockchain. For example, storing all of the content for a social media platform directly on the blockchain would lead to bloat as the platform gains adoption. Using CXO to store and distribute the content completely avoids this issue.

Skysuite: Native Applications

The Skycoin team is developing a suite of self-contained applications that run natively on the Skywire network. In combination with third-party applications, these drive more demand-generating services to the Skycoin ecosystem. Some of the applications currently in development include Sky-Messenger, an IM client; Skycoin BBS, a social media platform; Cryptosphere, a VPN client; and Kitty Cash, an ambitious successor to the wildly popular CryptoKitties game.

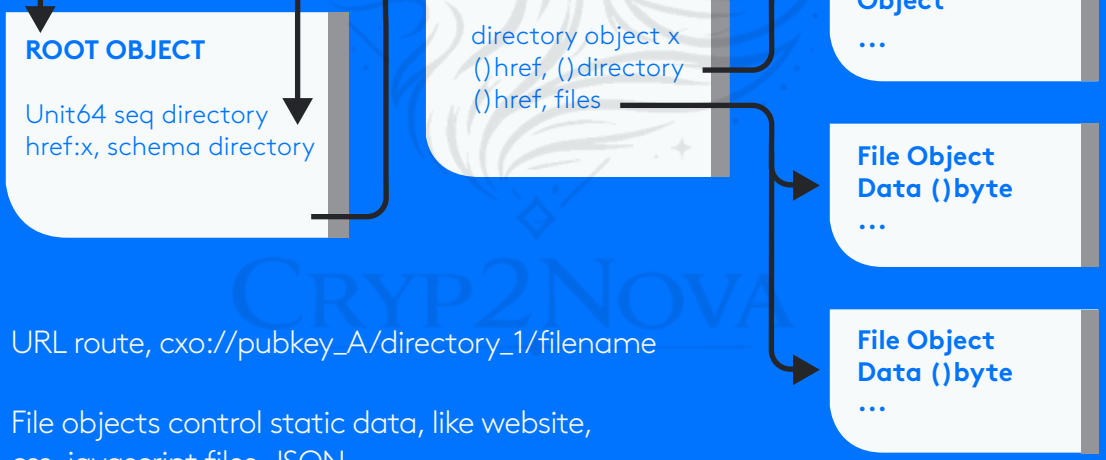
Archived copy · cryp2nova.com

CXO

Publisher controls data store contents and can update contents

Root objects signed by publishers private key

Sequence number for updating data store contents



URL route, cxo://pubkey_A/directory_1/filename

File objects control static data, like website, css, javascript files, JSON

Objects are identified and fetched by SHA256 hash

Files will not re-download unless changed, thus saving network bandwidth and speeding content delivery

Cryp2Nova

Archived copy - cryp2nova.com

Skyminer Hardware

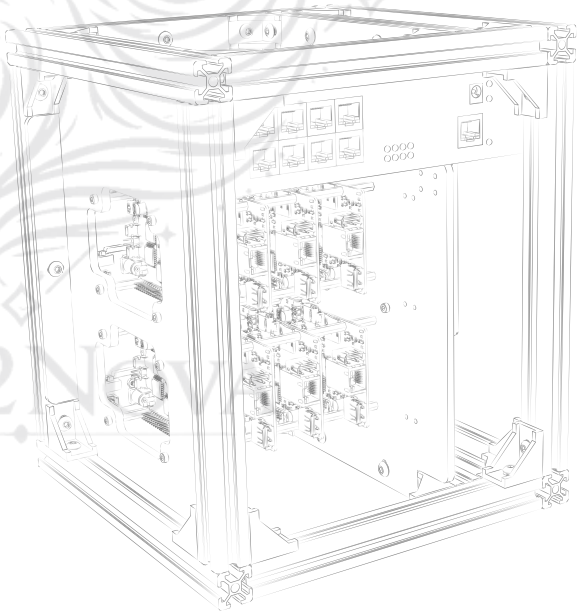
Skyminers are custom-built hardware VPN units that provide the computing power, networking capability, and storage capacity necessary for the Skywire network's infrastructure backbone.

The Skycoin ecosystem is designed to be accessible to everyone, regardless of their means or technical knowledge. Skyminers are a major driver of that accessibility. Their low-cost hardware and energy efficiency make them relatively cheap to buy and run. A "plug and play" functionality is currently in the works so that nontechnical users can easily deploy their own nodes.

In keeping with the Skycoin Project's open-source roots, full Skyminer part lists and assembly guides will be available to anyone who would like to build their own.

Technical Specifications for v1 Skyminer

- Custom PCB boards
- 16-port OpenWRT router
- 16 GB RAM *(32 x 512MB DDR3)*
- ARM Cortex ™-A53 CPU
- 8 x 16GB Class-10 A1 Micro SD
- Hexa-core Mali450 GPU
- LAN Bandwidth: 8 x 100Mbps
- Gigabit ethernet, 8+1 port switch
- 64-bit Linux *(Alpine Linux)*



Unit Production Capacity

The Skycoin team is already ramping up production of Skyminers. Post mainnet, Skycoin plans to have 1 factory producing 1,000 units per week with plans to scale up to 2 factories producing 10,000 units per week by Q1 of 2019.

Archived copy · cryp2nova.com

Hardware Research and Development

There are two main areas of R&D for Skyminers. First is the antenna hardware. The team is developing two main antenna variants:

1. A short-range *(up to 5km with clear Line-of-Sight)* antenna for point-to-point access in urban areas

2. A long-range *(up to 15km)* antenna to connect sparsely populated communities

These antennas will use multiple-input and multiple-output *(MIMO)* signaling to maximize performance and effective range. In order to accommodate the needs of a global customer base, the antennas will have two power configurations:

1. Low-power antenna built to comply with US FCC regulations and similar international regulations regarding unlicensed transmissions *(CFR, Title 47, Part 15)*

2. High-power antenna for geographies that allow them

First generation Skywire antenna units are in testing phases now with availability anticipated for mid-2018.

The second R&D focus area is the components of the Skyminer itself. Two of the initial development priorities for the team are multi-terabyte storage arrays and specialized FPGA chips capable of decrypting traffic orders of magnitude faster than the first-generation Skyminer components. The team plans to partner with hardware suppliers to build optimized hardware without sacrificing affordability.

Archived copy · cryp2nova.com

Skywire Adoption Plan

When fully deployed, Skywire provides direct access to the Internet backbone. In order to achieve this, Skywire must provide:

- Short-range connectivity between nodes in densely populated regions
- Long-range wireless connectivity in sparsely populated regions
- Backhaul connections to the fiber backbone

These goals are achievable with existing technology. Skywire will use a phased approach to roll out the network.

Phase 1: Testnet

The first phase is already underway. A software-based testnet has been live since late 2017. The first Skyminer units, at the time called Skyminers, have shipped, and the hardware-based testnet will begin in late Q1 of 2018. The testnet allows the team to ensure Skywire is ready for broader adoption. Operators of official Skyminers and select DIY operators will receive Skycoin for their participation in the testnet.

In this phase, the network functions as an overlay—traffic between Skywire nodes must travel over the existing Internet unless the nodes are directly connected over Ethernet or WiFi.

Phase 2: Mainnet

The second phase marks the official launch of the mainnet and the beginning of real mesh network capabilities. Skywire nodes will connect to each other over WiFi and share bandwidth. Both short-range and long-range wireless antennas will become available during this phase, enabling node peering over distances up to 5km and 15km, respectively.

At this stage, the market for bandwidth will not be at self-sustaining critical mass, therefore the Skycoin Foundation will temporarily subsidize node operations. As an incentive for early adopters, a daily allotment of Skycoin will be distributed evenly among the total number of nodes in operation. As the number of nodes increases, this subsidy will naturally decline and rewards from usage will grow. Eventually, the reward structure for operating a node will result entirely from usage.

Archived copy · cryp2nova.com

Phase 3: Backhaul

Backhaul traditionally refers to the portion of the network that connects the network edge and the main backbone. In Skywire, backhaul refers to the connection between the wireless meshnet and a fiber connection point. Establishing Skywire backhaul connections is more involved than establishing peer-to-peer connections since it requires setting up a direct connection to fiber in a colocation data center or other network point of presence.

Because the nodes that facilitate backhaul connections aggregate traffic into the Internet backbone, they will require more upfront investment and hardware capacity than a typical node on the meshnet. Current Tier 2 network operators who own fiber connections can easily set up their own Skywire equipment to support these backhaul connections, which provides them with a method to monetize otherwise unused bandwidth.

Once backhaul connections are implemented, the meshnet no longer depends on Tier 3 ISPs *(e.g. Comcast)*. For additional performance and redundancy, backhaul connections should be established between as many fiber locations as possible.

Phase 3 completes the implementation of the Skywire architecture, but the work by no means stops there. Upgrades to the network's hardware will constantly be researched and developed. These upgrades will increase efficiency and performance, ensuring that the network can always meet demand.

CRYP2NOVA

Archived copy · cryp2nova.com

Team | Founders

It takes extraordinary people to do extraordinary things. The Skycoin team is an assembly of the best and brightest to create the future.

Synth

Founder

Synth, one of the earliest developers behind Bitcoin, started Skycoin 8 years ago with a vision of creating a new, decentralized Internet. He sits on the advisory boards of several cryptocurrency projects. Synth has a background in mathematics, distributed systems, and symbolic logic.

Houwu Chen

Founder

Houwu is one of the creators behind Ethereum, and the author of the Obelisk whitepaper which sits at the heart of our decentralized Internet and currency. He was formerly a PHD at Tsinghua University.

CRYP2NOVA

Archived copy · cryp2nova.com

Team | Investors & Advisors

Michael Terpin

Founder and CEO of CoinAgenda

Michael Terpin is the Founder and CEO of Transform Group and the Founder of Marketwired. In early 2013, Terpin co-founded BitAngels, which gave birth to the CoinAgenda conference series. He also co-founded early blockchain incubator bCommerce Labs and the Dapps Fund. Currently, Terpin heads the ICO investment committee for the Alphabit Fund and advises numerous blockchain companies and foundations. Terpin has led the PR efforts for more than 150 blockchain companies and foundations.

Alphabit

Digital Currency Fund

Co-founded by Liam Robertson, a former currency trader at hedge fund Light Peak Capital in London, Alphabit is a $300 million fund that operates as a cross between an open-ended mutual fund and a hedge fund. Alphabit's previous investments include Videocoin and Stormx.

TokenKey

Founded by Chris Emms – Tokenkey is a specialized global team that provides assistance with blockchain projects, ranging from initial idea to delivery, allowing teams to remain project focused. Their services cover assisting projects to procure : whitepapers and business plans, token economics, auditing and rating, structuring and compliance, corporate entity and legal, digital asset creation, advisory board, token issuance and exchange listing, custodial and escrow, marketing and PR, community management and bounty, and cryptocurrency trading and arbitrage.

SharkCIA

Marketing and Strategy

SharkCIA is a cryptocurrency intelligence agency specializing in the research, investing, and marketing of blockchain-based companies. With members from around the world, SharkCIA's experienced team provides growth-hacking, public relations, grassroots community outreach, strategic advisement roles and has helped to propel relatively obscure projects towards wider recognition and increased market capitalization.

Archived copy · cryp2nova.com

Appendix

A Distributed Consensus Algorithm for Cryptocurrency Networks
by user johnstuartmill and an anonymous user

Skywire: A New Internet

CX Overview

Resources

10 Best and Biggest Bitcoin Mining Pools 2017
(2017, November)

BBC News. CryptoKitties craze slows down transactions on Ethereum network.
(2017, December 5).

Bitcoin Could Consume as Much Electricity as Denmark by 2020.
Deetman, S. *(2016, March 29)*

The global findex database 2014
Demirguc-Kunt, A., Klapper, L., Singer, D., & Oudheusden, P. V. *(2015)*

A Quick History of Cryptocurrencies BBTC -- Before Bitcoin.
Griffith, K. *(2014, April 16)*

Identification for development 2017 annual report. *(2017)*

Two Researchers Think 'Armageddon' Is Nigh for Bitcoin.
Noble, Z. *(2014, June 17)*

poverty and shared prosperity 2016. *(2016)*

How Cable Companies Are Stopping You From Getting Fiber
Smith, D. *(2014, June 6.)*

47 percent of the world's population now use the Internet, study says.
Taylor, A. *(2016, November 22)*

Proof-of-Work vs Proof-of-Stake: merits and disadvantages.
Young, J. *(2016, September 14)*

Archived copy · cryp2nova.com



Skycoin

Skycoin.net

Archived copy - cryp2nova.com