SKY-NET
WHITE PAPER
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Provided by SKYHASH

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Company Information

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Description of Business:

A Blockchain Development Application Development Mining Business with the following components:

- ➢ Cloud Mining Service http://sky-hash.net
- ➢ Hosting Service (under development)
- ➢ Consulting Service (for individuals and corporations)
- ➢ Mining Farm Operation Service: Design, development, and selling of mining related equipment.

Table of Contents

1. Executive Summary.....8

2. Introduction.....9

2-1 Background.....9

Risks to Mining: Movement to PoS in place of PoW.....9

The Market Size of Mining.....15

3. Cryptocurrency mining methodology today.....16

Current mining RIG..... 17

Mining Reward..... 17

Poisson distribution of mining pool..... 18

4. Solution..... 19

SKYNET Platform..... 19

4-1 SKY-Hive 20

SKY-Hive CPU optimizer 21

SKY-Hive GPU optimizer 23

SKY-Hive ASIC optimizer 24

SKY-Hive Mining Policy..... 24

Centralized Rig machine control and Monitoring..... 26

O2W functions details..... 29

AI based Crypto currency real time evaluation unit..... 33

Custom design for independence mining users..... 35

SKY-NET User Dashboards..... 36

4-2 SKY-HOSTING/CLOUD..... 37

4-3 SKY-EXCHANGE..... 37

4-4 SKY-DEX..... 37

Illustration of SKYCoin distribution. 39

5. SKYCoin2, details of Original Blockchain..... 39

6. Blockchain, token creation and technical overview. 43
7. Introduction of Board Members..... 45
8. Road Map 47
Timeline..... 47
9. Token Economics..... 49
10. Details on issuing tokens..... 51
11. RISK FACTORS 54

1. Executive Summary

Bitcoin, Ethereum, and other alternatives that are utilizing blockchain networks have proven the utility of decentralized transactions.

Recently, a substantial number of people worldwide are becoming more involved in mining coins every day and have proven that people are willing to contribute to the applications, providing it gives them a return on the work done.

According to a mining market report in 2018, there is more than 6 Billion (USD) in annual mining value. The Cryptocurrency market has become a new globally based economic domain. Mining has shown to be resilient and remains good motivation for people who are interested in the cryptocurrency market field.

The challenge of mining is now how the reward can be increased and determining which coins are better to mine.

At SKY-NET, our aim is to provide the most efficient mining factory platform, generating the highest hashrate and reward for any cryptocurrency available today.

Our platform, SKY-NET has four major components, *SKY-Hive***,** *SKY-Hosting/Cloud***,** *SKY-Exchange* **and** *SKY-DEX***. SKY-NET's mining platform and methodologies give a much higher hashrate than any other current mining solutions.** To assure consensus on our mining platform, candidates will be able to earn the highest hashrate with reward using our hash solution.

The concept of SKY-NET is to allow anyone the ability to mine cryptocurrency without having any professional knowledge or experience. **Sky-Hash may enable them to boost hash rates up to 30%.**

Here we are proud to present the mining market our novel business and technology solution. We will also include details on our platform, original blockchain, mining optimization technique, mining firm infrastructure, our implementation plan, and our token economics.
We hope you enjoy!

2. Introduction & Vision

2-1: Background

Risks to Mining: Movement to PoS in place of PoW

Whilst the consensus model most popularly used in mining is currently Proof of Work (PoW), this may change in the future as more projects consider moving to Proof of Stake (PoS). PoW currently requires a very large amount of energy usage due to the processing power required, meaning then that a future with PoS could drastically reduce costs in the mining world. While this may sound like a lucrative opportunity, the rewards from PoS mining are significantly lower, where actors simply keep the transactions fees rather than earning any block reward. PoS requires nodes to already hold a number of coins to rightfully add blocks onto the chain. This needs significantly less power as the computations required are simpler. More coins have specific plans in their roadmap to move to a proof of stake consensus model, with Ethereum looking to join the ranks of other altcoins such as NXT, Decred and Peercoin that already run without PoW. If some technical and logical hurdles can be overcome, we may then see an almost complete move towards PoS. However due to the conservative nature of Bitcoin development it is extremely unlikely that Bitcoin itself would ever change its consensus model.
PoS mining does bring with it some risks, as there is an incentive for Nodes to validate both chains in the event of a fork. This is known as the zero-stake problem, as you do not lose anything from behaving badly in the network due to the low intrinsic costs. The best strategy for a bad actor is to mine on both chains, no matter whether it be accidental, malicious or the true chain. With PoW, the miner's incentive is to put their hashing power on only the correct chain, otherwise they face the chance of incurring high running costs with little to no rewards. Thus, PoW continues to be the only real working consensus model for mining at the moment, but we may see a large shift in the next 3–5 years as more protocols are put in place to solve the issues related to PoS. Brian Fabian Crain, host of the Epicenter Podcast and founder of chorus.one, a node validation and staking service for Proof-of-Stake blockchains told Konfid.io: "My view is that Proof-of-Stake has massive advantages in terms of being cheaper, scaling better, being faster, having stronger game theoretic security properties and not being an environmental disaster. The downside is that Proof-of-Stake is more complex than Proof-of-Work, so taking some time, but for the vast majority of applications PoS will make more sense than PoW".

Environmental impact of PoW

Currently bitcoin mining alone consumes roughly 0.2% of the world's energy usage

and is expected to have the same consumption as Austria by the end of this year. The energy cost of mining can seem excessive due to the large amount of processing power needed to successfully mine blocks onto the chain — but it is worth considering the fact that physical mining for gold is much more resource-intensive than cryptocurrency mining, so the relative impact costs may not be as high as people think. However, with global electricity prices rising and western economies already paying large sums per kilowatt-hour, other methods of energy production will need to be explored. Not only can we decrease the environmental impact that mining has on the world, but we can also look at factors which can significantly lower the financial cost too. One particular way to reduce the cost and environmental impact of mining is by using renewable energies such as wind, solar and geothermal. Cyberian Mine currently makes use of hydro power, allowing for a much lower environmental cost when mining with a PoW consensus method. Mining may be a way of incentivizing investment into renewable sources of energy.

The Black Market: With increasing returns available to miners per coin, an incentive is created for people to operate in the black market, where individuals steal energy or break local regulations in order to run mining operations. In April this year, 600 computers were seized from a property in Tianjin, China, after the local power grid noticed an abnormal amount of energy being used at the premises. It is currently thought to be the largest ever energy theft on record in China. The consequences of undertaking an illegal mining operation in China, and many other countries results in the confiscation of the illegally operated equipment and the possibility of arrest. Although it is a key player in the global mining industry due to it's cheap hardware, labor and energy costs, China continues to restrict and discourage crypto mining. A large energy surplus has provided a boom to the industry, but with less power being produced in the country now, and a more hostile environment toward cryptocurrencies, legitimate mining firms are deciding to relocate to more accommodating countries. Illegal mining also occurs in countries with high energy costs due to the amount of money that can be saved when siphoning power. In South Korea, the most expensive country in the world to mine at a cost of roughly 26,000 dollars/BTC, it is still possible to get attractive rates for agricultural and industrial buildings in underdeveloped areas. This has led to many cases of these premises being illegally rented out to miners, providing them with an unfair advantage in the market. For legitimate facilities, the closure of illegal mining spaces provides more opportunity for profit. When illegal farms get shut down, the rate of growth on the network slows and provides more room for legitimate miners.

Regulatory Pressure. Governmental bans: While many governments are beginning to regulate the crypto world in an effort to protect consumers and businesses, some are taking punitive measures for different political and economic

reasons. China famously continues to clamp down on mining and cryptocurrencies in general, with the People's Bank of China reporting that the Yuan is now only responsible for less than 1% of all worldwide trades in Bitcoin. Vietnam also has its own strict policy, with the government putting in place a total ban on all mining rig imports into the country from August 2018. Tighter regulation is even coming to places like the USA, with some local regions and towns banning mining altogether. Environmental and economic reasons are often behind these bans. The New York town of Plattsburgh put in place "regulations to protect and enhance the City's natural, historic, cultural and electrical resources", after a large number of mining companies flooded the area to take advantage of an available energy surplus. Cyberian Mine and Kintaro have chosen however to operate in countries without large risks to mining operations. Norway, Russia, Switzerland and a few other countries provide numerous benefits for those who wish to mine, with a combination of government support and cheap hardware, labor and energy costs. Mining in crypto-friendly countries may reduce the chances of illegal mining operations surviving which could lead to the bottom of the black market to fall out. This will leave us with a number of regulated spaces remaining that support the market.

Economic Pressure: The pressure from operating expenses in terms of maintenance, electricity, personnel and facility needs to be outweighed by the revenue generated from mining. These expenses vary from country to country based on the cost of living and economic policies implemented by the respective geographical region. Some regions have even defined policies specially targeted towards mining. Quebec, for example, recently authorized utility Hydro-Quebec to raise the electricity prices to 15 cents per kilowatt hour, about three times the older prices for blockchain companies. Although Hydro-Quebec spokesman Jonathan Cote said that they didn't want to send a message to the market, the market certainly reads their action as counter-neutral towards mining. Ultimately, some areas with higher operational costs or unfavorable policies will stop mining and the areas which provide an edge in terms of compliant policies and incentives will prosper further.

Historical Reputation of Cloud Mining: Like the rest of the crypto world, mining has also been a target of a number of scams in the past. Cloud mining scams were particularly rampant, with lots of people paying for hash power at a mining data center but receiving no rewards in return. Prior to 2014 the costs of mining were relatively inexpensive and rigs could be bought and used at a low price. However, as the price and cost increased it became more difficult for an individual to undertake a mining operation themselves. Scammers saw an opportunity to take advantage of the fact that people needed to group together in order to continue mining efficiently. Vaporware scams have also taken place, with mining offerings that were in no way connected to facilities in the physical world. Interested parties

handed over money for machines or hash power that simply didn't exist. Investors should then seek to find mining companies that they can physically place and can see the hardware, trust those involved and maintain transparency throughout the whole process. Cyberian Mine, in partnership with the team at Konfid.io, offers such an opportunity to investors. Eventually they will move the provenance and the rest of the supply chain for the machines they host onto the blockchain.

Risk of Centralization: The staggering rise in the hash rate recently implies new miners coming into play. Increased Competition in the cryptocurrency Mining space is leading to miner centralization. The pie chart below gives an estimate of hashrate distribution amongst the largest mining pools for bitcoin.

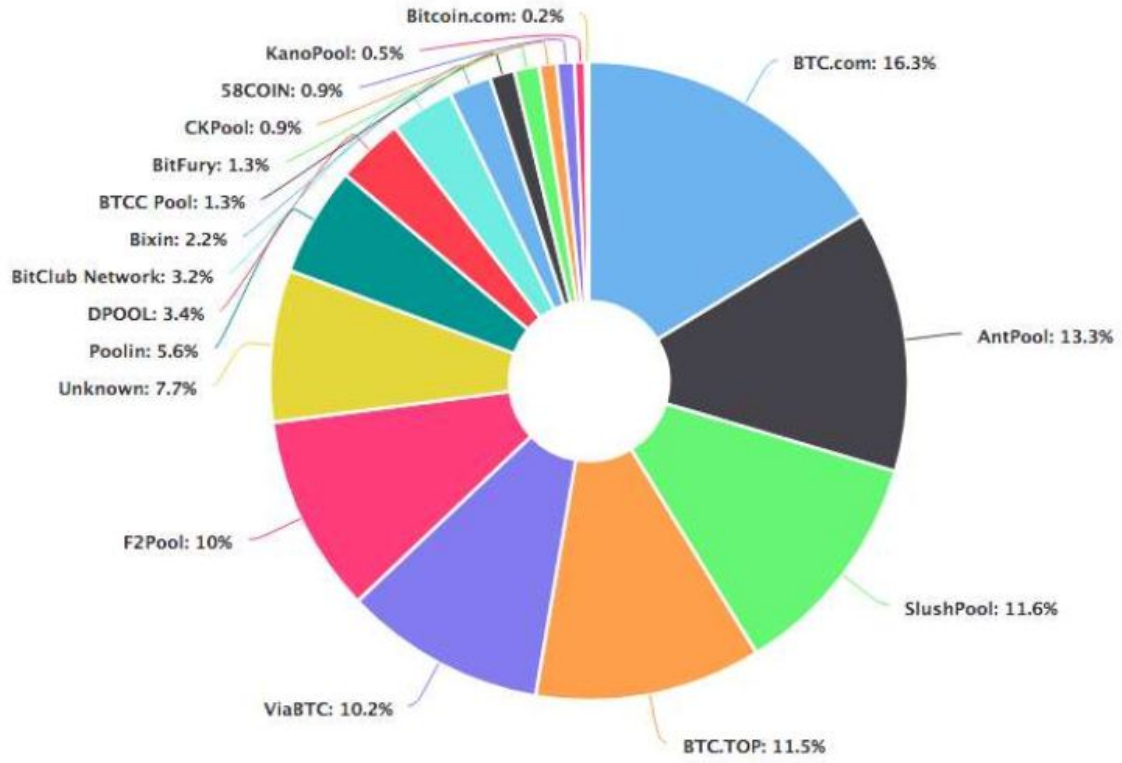


Fig 1: An estimate of the market share of the most popular Bitcoin mining pools.

With more mining pools having more of the hashrate distribution, they have more influence over the network which raises questions regarding centralization and vulnerability of the network. Mining facilities, such as Cyberian Mine, that give access to professional mining conditions without limiting their investors to the major pools may be a way that the spread of decentralization can be prohibited. Clients who choose to co-locate their hardware with Cyberian Mine are provided with the freedom to select the pool they want to be part of.

The future of mining & distributed data processing: 15 years ago and in line with increasing network bandwidth, businesses other than banks, insurance and IT service providers (who were already there) started to move their company servers into data centers to reap the benefits of higher security, more reliable network connectivity and for multi-office businesses, vastly reduced overheads for managing their servers from a central point. Within 5 years, cloud computing started to emerge with businesses moving their applications and data into a virtualized hardware environment managed by a 3rd party, thus removing their costs and responsibility for maintaining the physical hardware. The benefits being ease of scale, increased server redundancy and in the case of a multinational company: having their service closer to the consumer (FOG computing). Within that time, new software-defined platforms have emerged to give greater central management to an ever expanding infrastructure spread. Add significantly faster global network speeds and blockchain technologies into the mix and services can now be distributed even further. Although distributed computing is not a new concept, the range of applications that harness this topology has been limited until now where an explosion of distributed and decentralized computing applications are being developed not just for businesses, but also as a means of monetizing consumer devices. The popularity for mining will continue to rise as cryptocurrency becomes more widely accepted and blockchain applications become more useful. Therefore, innovation will continue to evolve mining hardware to be even more powerful and efficient. The mining innovation will continually improve the profitability and utilization of crypto currency.

The Company's Platform Terminology:

The ***SKYCoin***: The SKYCoin will be created on an Ethereum platform following industry standards. Ethereum Requests for Comments (ERC) is the world's largest protocol for developers across the world with ERC working to improve its efficiencies every day. The '223' in ERC223 stands for the unique proposal ID number and is defined by a set of rules which should be met, for a token to be accepted.

There are standard rules which apply to all ERC223 Tokens. These rules are used to facilitate the interaction among the Tokens within its Ethereum network. Technically, these tokens are blockchain assets that have a value. This value can be sent and received to any party with a valid wallet address. Once the platform is operational, we will facilitate the issue of further SKYCoin which will be sold on our platform to third parties. This will enable them to use and access all the services on our platform including the services offered by our partners.

RIGToken: The RIGToken is a mineable token and it will use ERC918 which is also compatible with the Tokens within its Ethereum network. A SKY- NET user can exchange SKYCoin to other cryptocurrencies including RIGToken. The rate of exchange will be determined at the value of market. Fig-2 shows the crypto currency market by region. The cryptocurrency market in APAC is expected to hold the largest market during the forecast period. APAC is notable for its high adoption of cryptocurrency. This is attributed to the low cost of electricity in China and early adoption of cryptocurrency in Japan. China is the largest market among all APAC countries.

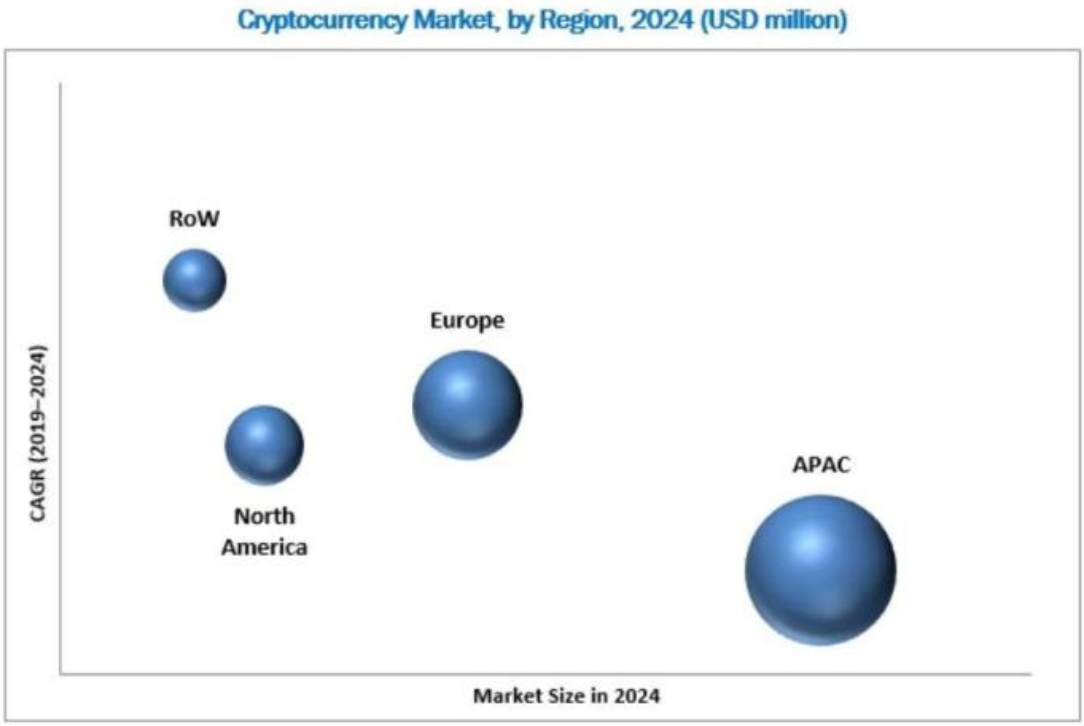


Fig-2 Mining Market size

Daily excavation amount of major mining currency

Fig-3: Total major mining stocks per day

Fig-3 shows the total major mining stocks per day in 2018. About 6 billion dollars or more of currency in a year has been mined and rewarded. Thus, we can see the mining market has been developing the cryptocurrency economic field worldwide.

Summary: In conclusion we can state that cryptocurrency mining seems ideal for the low risk, lower reward portion of a crypto portfolio. Facilities in locations like Siberia can survive close to 50% of a drop in the value of BTC, and still offer returns to investors above their costs month-on-month. This is a way to mitigate risk in a potentially falling market. However, the potential return on bitcoin or other cryptocurrencies in a market where the value of the coins goes up, would be higher when investing directly in the underlying tokens.

The PoW consensus model may be replaced for projects like Ethereum, but it is here to stay for Bitcoin and for some of its potential rivals like the privacy coin Zcash. The Mining market is projected to be $38B per year by 2025. Options like crypto loans, regulated funds that give institutional investors access to jurisdictions with the best mining conditions, and efficient management of the rewards earned

by mining investors mean mining is still an attractive proposition in 2018.

3. Cryptocurrency mining methodology today

Cryptocurrency mining can be done in multiple ways: CPU, GPU, FPGA and ASICs. The main problem which miners face when mining with a GPU is setting up the mining rig to be optimized to achieve the highest hashrate to increase their rewards.

To begin mining, the following process is required:

1. Installing the GPU
2. Tuning the GPU
3. Installing the device drivers
4. Adjusting/Setting up the mining software
5. Joining the mining pool
6. Mining

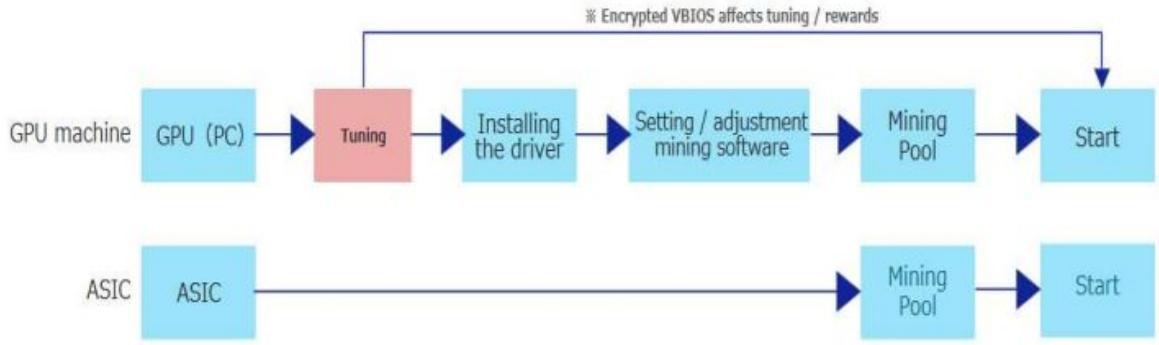


Fig 4: Traditional mining process

In the case of AMD GPUs, there are many parameters that can influence the mining hashrate. These parameters are not constant values. The manufacturer may select different memory chips, overselect clocking on the GPU card, or select Open CL Kernel, some of the many possible parameters on mining ware. All of this is knowledge needed by the miner to obtain a higher hash rate. This setup process is not easy for all people who intend to mine. SKY-NET provides a complete solution to SKY-NET members, even those who don't have mining knowledge. We will explain the solution with our SKY-NET products in the following section.

The Current Mining Rig Situation

Mining is the colloquial term for a resource-intensive computing process that basically involves guessing a number that results in a desired solution when plugged into a hashing algorithm. This value "solves" a block of Bitcoin transaction data, and the block is added to the blockchain. A miner receives a reward in cryptocurrency for this work, and these hash-based algorithms are called proof-of-work (PoW) algorithms.
Most major cryptocurrencies use a unique PoW algorithm. For example, Bitcoin uses a hashing algorithm called SHA-256, Monero uses CryptoNight, and Ethereum's PoW algorithm is called Ethash. There are many different reasons to choose one PoW algorithm over another, but as far as ASICs are concerned, it mostly comes down to memory requirements. Unlike Bitcoin, Litecoin, or their countless derivatives that have been overtaken by ASICs, Ethereum and Monero are considered "memory hard," meaning they require a decent amount of RAM to run their hashing algorithms.

CPUs and graphics cards are chips that can be used for a wide range of different tasks. What these types of chips lack in raw efficiency, they make up for in their ability to run processes that require a lot of data to be stored in a computer's memory. RAM slows down ASICs, so algorithms that make a lot of use of it generally stave off the influx of specialized chips. These algorithms are thus called "ASIC-resistant". General-use chips that are well-suited to slow RAM, like GPUs and CPUS, can keep trucking along however.

Mining Reward:

Assuming sufficient quality of the hash function in the protocol and the pseudo-random number generator used in the construction of the block header, whether a given calculated hash leads to a valid block can be considered for all purposes a random event, independent of the validity of any other calculated hash. A quantity known as the difficulty (which we will denote D) is adjusted periodically by the network and determines, as the name suggests, the difficulty of finding a valid block. The target value is chosen so that every computed hash will lead to a valid block with probability 1 / (2 powered 32 * D).

A miner with hashrate h mining for a period of time t, will calculate a total of ht hashes, and so will find on average ht / (powered 32 * D) blocks. Our expected payout is thus htB /(2 powered 32 * D).

Example. We dedicated a mining computer which can perform a billion hash calculations per second, h = 1Ghash/s = 10^9 hash/s.

If it is used to mine continuously for a day (86,400 seconds) when the difficulty is D = 1690906 and the block reward is B = 50BTC, we will find on average

$$\frac{ht}{2^{32}D} = \frac{10^9\,\text{hash/s}\cdot 86400\,\text{s}}{2^{32}\cdot 1690906} \approx 0.0119 \text{ blocks},$$

and receive payment of 0.0119B = 0.595BTC on average.

Poisson process on Mining pool:

Mining is hence analogous to gold mining. Just like a gold miner who spends manpower and energy to dig the ground in search of gold, a miner spends computing powers (known as hash rates) and related electricity/cooling/network expenses in search of solutions to some difficult cryptography puzzles. Technology rules that the probability of finding a solution is not affected by the number of trials attempted. This well-known memoryless property implies that the event of finding a solution is captured by a Poisson process with the arrival rate proportional to a miner's share of hash rates globally. Precisely, given a unit hash cost c and unit dollar award R for each block, the payoff to the miner who has a hash rate of λA operating over a period T is

$$X_{solo} = \tilde{N}_{solo}R - c\lambda_A T, \text{with } \tilde{N}_{solo} \sim \text{Poisson}\left(\frac{1}{D}\frac{\lambda_A}{\Lambda}T\right)$$

Here, *N solo* is the number of blocks the miner finds within *T*, Λ denotes global hash rate (i.e., the sum of all hash rates employed by miners during *T*, *D* = 60 × 10 is a constant so that on average one block is created every 10 minutes. The Poisson distributed random variable *N solo* captures the risks that a miner faces in this mining game.

Because mining is highly risky, miners have strong incentives to find ways to reduce risk. While theoretically there are various ways to reduce risk, a common practice is to have miners mutually insure each other by creating a (proportional) mining pool. The next section introduces the SKY-NET solution as a collaboration

task for mining users.

4. Solution

Product Detail:
SKY-NET Platform:
SKY-NET provides the solution to do easy mining by using the following four components.

1. SKY-Hive
2. Sky-Hosting/SKY-Cloud
3. SKY-Exchange
4. SKY-DEX

SKY-NET provides SKY-Wallet which is a cryptocurrency wallet. Each member of SKY-NET has their own SKY-Wallet which stores and gives control of the cryptocurrency which they are holding to themselves.
Members can utilize their own coins for mining, SKY-Hosting, SKY-Cloud and SKY-Exchange services. The advantage of being a SKY-NET member is having the ability to utilize the most effective mining hashrate along with using SKY-Net's own Pool to maintain a high rewards rate along with reinvestment for mining inside the SKY-NET environment. The development for the platform started in 2016. The product has already been implemented in Japan in a GPU mining farm consisting of 2,300 GPU cards in Okayama Prefecture in Japan. Around 50 clients are utilizing this mining facility and millions (USD) are mined annually. Here we present an illustration of the higher-level processes of the Company's platform.

SKY-Hive Function correlation diagram

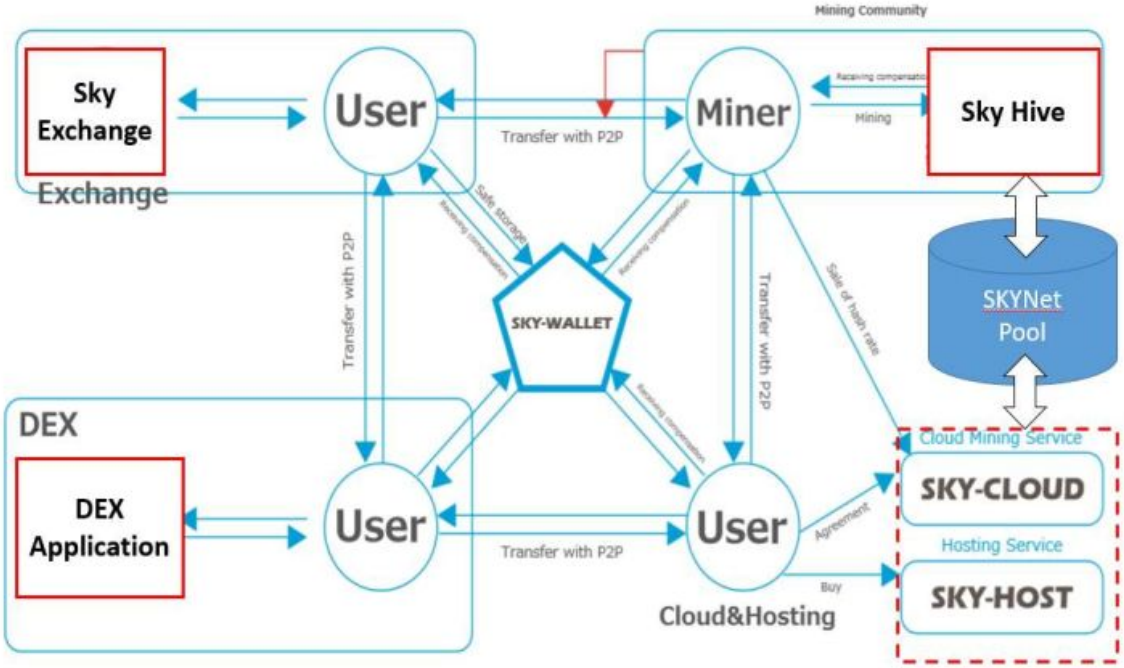


Fig 5: SKY-Hive Function correlation diagram

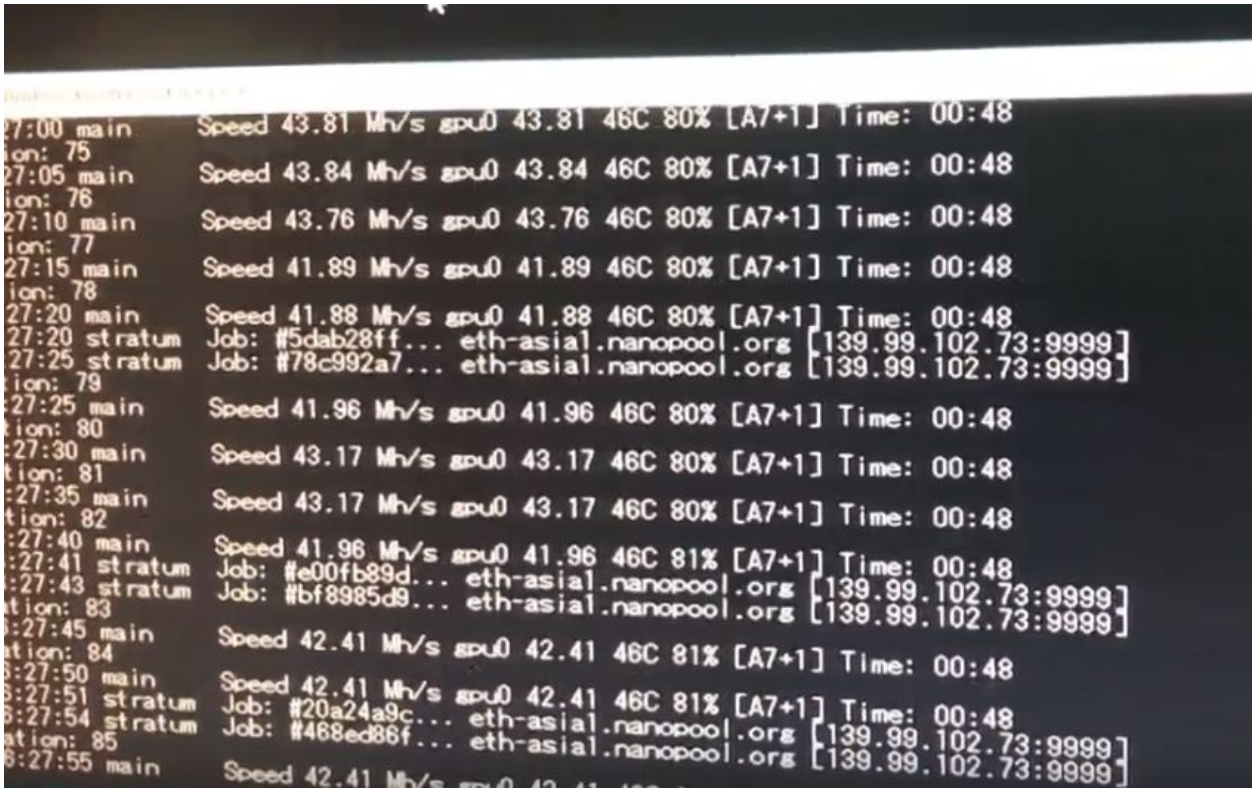
4-1 SKY-Hive

SKY-Hive is composed of multiple features. One is an optimized hash rate for mining and the others being a centralized control and monitoring service.

SKY-NET's Professional Mining Factory platform is called SKY-Hive. Sky-Hive is composed of three main parts.

1. A Maximized Mining hash rate
2. A Centralized Rig machine control
3. Environment Monitoring

Maximized Mining hash rate: SKY-Hive provides the Maximized Mining hash rate by using multiple optimization techniques. Our configurations have significantly increased hash rates for GPU cards.



Example: *Mining Ethereum using a RX470_4Gb Samsung AMD GPU with normal methods of tuning may reach hash rates as high as 28Mh/s but our configuration has shown to yield hash rates above 41Mh/s.*

SKY-Hive CPU optimizer: The SKY-Hive CPU Optimization technique utilizes Instruction level parallel, Thread level Parallels on mining ware and Data Transmission L3 cache layer implementation Kernel drivers. The result was published at IEEE GCCE 2018 international conference in Nara, Japan on 12th OCT 2018 by Prof. Dr. Hiro Takahashi. **In the case of SHA256d on an i-Core 7 Intel CPU, its hash rate was enhanced more than 551%**. Other algorithms are also being evaluated now and applied to more than 200 cryptocurrencies. Sky-Hive will provide these optimized mining wares to SKY-Net members.
We investigated the source code of *Pooler CPUminer* to optimize Thread Level Parallelism and modified the code adding on a calling sequence for the DTS L3 cache layer as shown in Fig 6 and Fig 7. The Original code gets a hash block from the crypto currency network and generates multiple processes for available processors. We optimize it to run on DTS L3 cache memory space. DTS L3 cache is a device driver in the Kernel Program. We modified this device driver for the latest distribution of Ubuntu Linux.

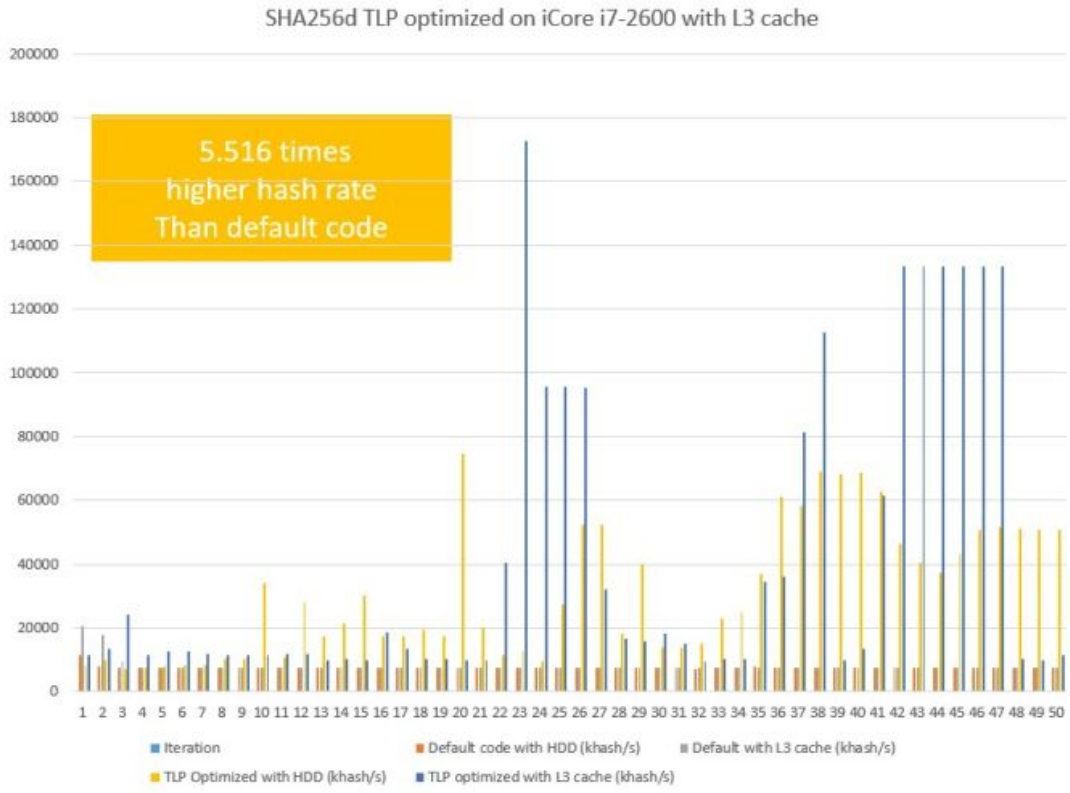


Fig6 SHA256d hash rate result

Iteration	Default code with HDD (khash/s)	Default with L3 cache (khash/s)	TLP Optimized with HDD (khash/s)	TLP optimized with L3 cache (khash/s)
1	11287	20418	8375	11352
2	8041	17799	9967	13583
3	7385	9393	7262	24284

Average Default Mining Result (HDD): 7,485.74 khash/s

Average Default Mining Result (L3 cache): 7,882.5 khash/s

Average TLP Optimized Mining Result (HDD): 30,968.96 khash/s

Average TLP Optimized Mining Result (L3 cache): 41,291.56 khash/s

14	7388	7371	21463	10284
15	7386	7397	30036	9736
16	7383	7372	17328	18558
17	7385	7351	17446	13240
18	7386	7374	19536	10167
19	7387	7365	17567	10099
20	7386	7314	74609	9960
21	7386	7337	20169	9959
22	7383	7388	11584	40273
23	7405	7376	12616	172776
24	7396	7376	9499	95548
25	7386	7378	27344	95463
26	7386	7378	52374	95279
27	7386	7394	52446	32261
28	7386	7385	18071	16703
29	7385	7377	40104	15732
30	7384	7325	13668	18314
31	7367	7350	13898	15102
32	7219	7361	15168	9496
33	7435	7374	22965	10185
34	7371	7378	24814	10117
35	7854	7371	37002	34311
36	7646	7371	61061	36138
37	7369	7365	58354	81242
38	7380	7372	69000	112656
39	7365	7366	68344	9866
40	7365	7383	68421	13371
41	7374	7389	62828	61321
42	7369	7391	46376	133349
43	7388	7373	40248	133187
44	7383	7380	37422	133166
45	7368	7382	43400	133378
46	7365	7375	50651	133246
47	7367	7384	51511	133242
48	7383	7377	50999	10177
49	7371	7380	50662	10018
50	7382	7376	50838	11344

5.516 times
higher hash rate
Than default code

Fig7 SHA256d hash rate comparison

SKY-Hive GPU optimizer: The SKY-Hive GPU optimizer provides a comprehensive solution for GPUs in the market. There are two GPU manufacturers, AMD and NVIDIA. SKY- Hive supports both. We have evaluated more than 100 types of coins and SKY-Net members will be able to access these optimization codes.

GPU Hive Mining Hash Pro Card (MHPC GPU) and its DTS hash driver is planned:
SKY-Hive has a plan to design the highest hash rate GPU card with DTS driver in 2019. The MHPC-GPU card has a AMD GPU and L3 DTS cache memory inside the board. This GPU card has a PCI Express bus similar to other GPU cards. Overclocking the BIOS, using Open CL Kernel turning and Mining-ware with DTS layer Kernel driver implementation will bring the highest hash rate when using standard GPU chips.

Sky-Hive also supports present GPU cards, modified for mining with a DTS driver. It has the potential of enhancing its hash rate over 30% higher than the original.

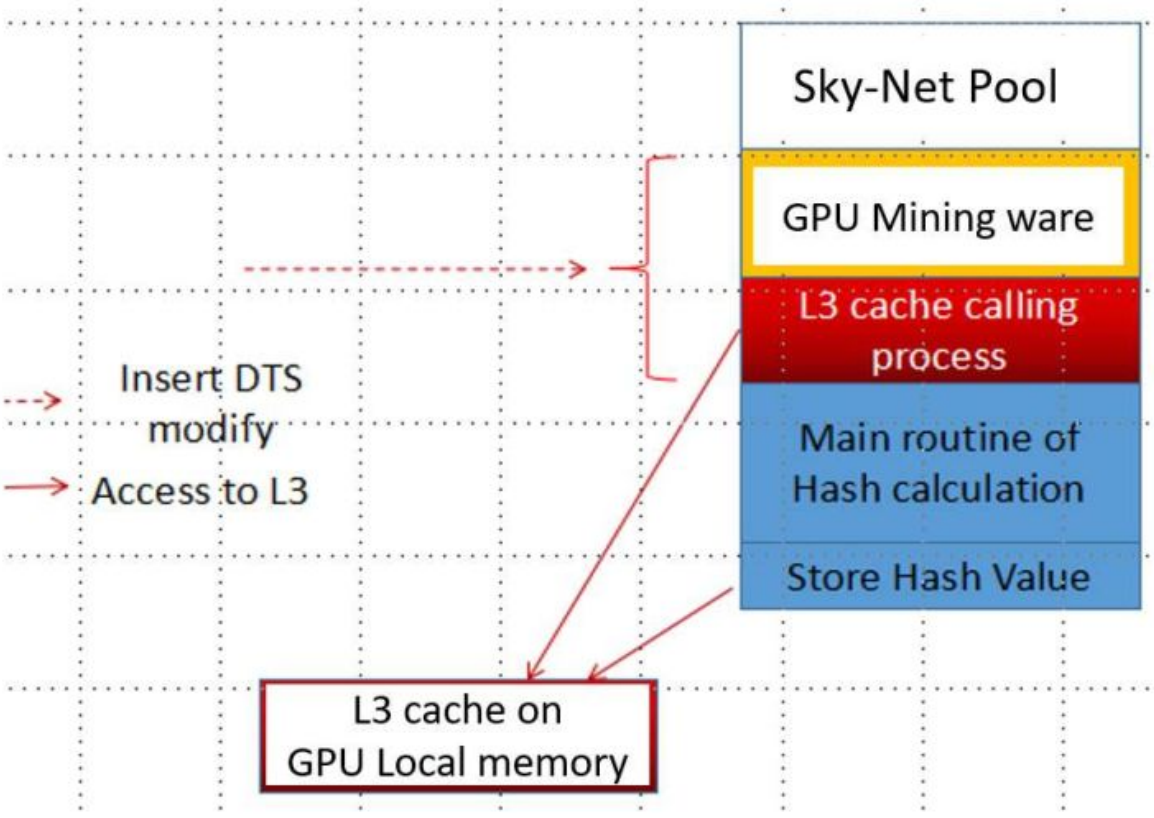


Fig8: L3 cache on CPU mining ware

The instruction execution rate by processor is calculated by the ratio between Clock cycle and Cycle per instruction.

$$\mathrm{Pr}\,ocessorExecutionRate = \frac{CR(Clockrate)}{\sum_{i=1}^{n} CPI_{cpu} CPI_{mrmory} CPI_{1/O}}$$

The gain calculation by cache memory was obtained by Amdahl's Law as following.

$$G_i = \frac{1}{1 - C_i + \frac{C_i}{X_i}} \prod_{j=1}^{m} L_{i,j} \cdots\cdots\cdots\cdots (1)$$

Where
Gi = Gain due to cache at level i
Ci = Cache size ratio (hit rate) at level i
Li,j= overhead factor j, at cache level I,
Xi= Cache speed ratio of lower level storage to higher-level storage media at level i

SKY-Hive ASIC optimizer: We have planned to provide highest hashrate mining ware for ASICs in the market on request for Sky-Net users.
SHA 256d based ASICs such as S9 has already been planned. Details of the support schedule will be released on SKY-NET news. A straight comparison between CPUs, GPUs and ASICs is difficult since CPUs and GPUs can technically be considered a type of ASIC. The main difference between mining ASICs versus CPUs and GPUs is that ASICs don't have all the extra 'bloat' that make CPUs and GPUs so versatile. You do not have the capability to run an operating system or play video games on the Bitcoin ASIC because the chip is meant to do only one thing, to mine Bitcoin. So a mining ASIC's efficiency is gained because all of its computing resources can be optimized for a single well-defined task.

SKY-NET mining computer policy:
SKY-NET's professional mining research team recognizes each mining chip's

behaviors and memory access hit/miss. Prof. Dr. Hiro Takahashi has proposed a balance between the computation and I/O latency by cache miss/hit. Storage systems need to provide high I/O transactions in addition to their capacity and availability requirements. Generally large and medium size storage systems consist of disk arrays and associated caches to improve the I/O performance. Multi-level cache hierarchy requirements for computing systems have been recognized as early as 1989. Caches at various layers of memory hierarchy in computing systems are faster but very small compared to the adjacent lower level of the storage device. Here, we have proposed a novel concept of a layered cache based system (Figure 1). This is a Data Transmission System (DTS) concept based on hierarchical layered memory architecture for information systems. The memory layers consist of hierarchical caches starting from local memory to hard disk (Figure 1 a). The proposed concept consists of 4 levels cache (L1, L2, L3, L4,) to store important data for read and write on various levels in close proximity to the CPU.
The key requirement for the size of the cache at lower level Lj-1 is that it should be smaller than the size of the cache at the higher level Lj to maintain all the data of lower level cache layer at a higher cache layer. This requirement fulfills the inclusion property dictating that the contents of lower level cache are a subset of the higher-level cache unlike the non-inclusion where this property does not hold. This property gives rise to a balanced layered memory architecture as shown in Fig-9 (a).

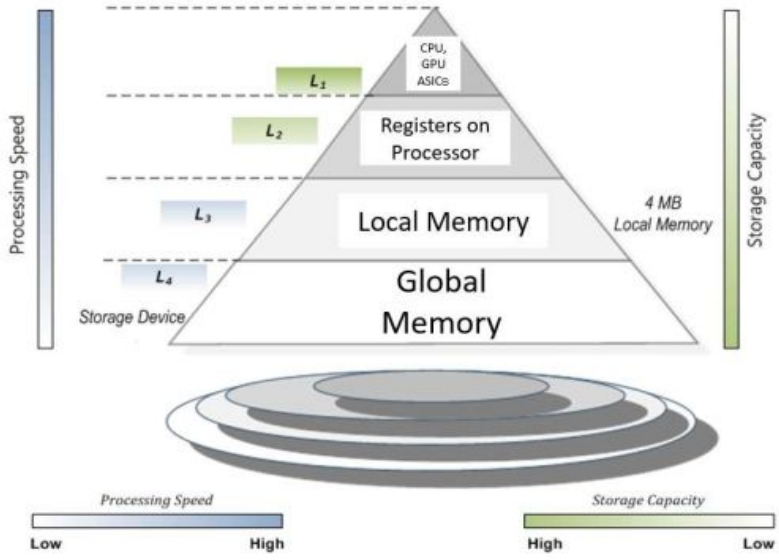


Fig-9 (a) Balanced computing system memory hierarchy

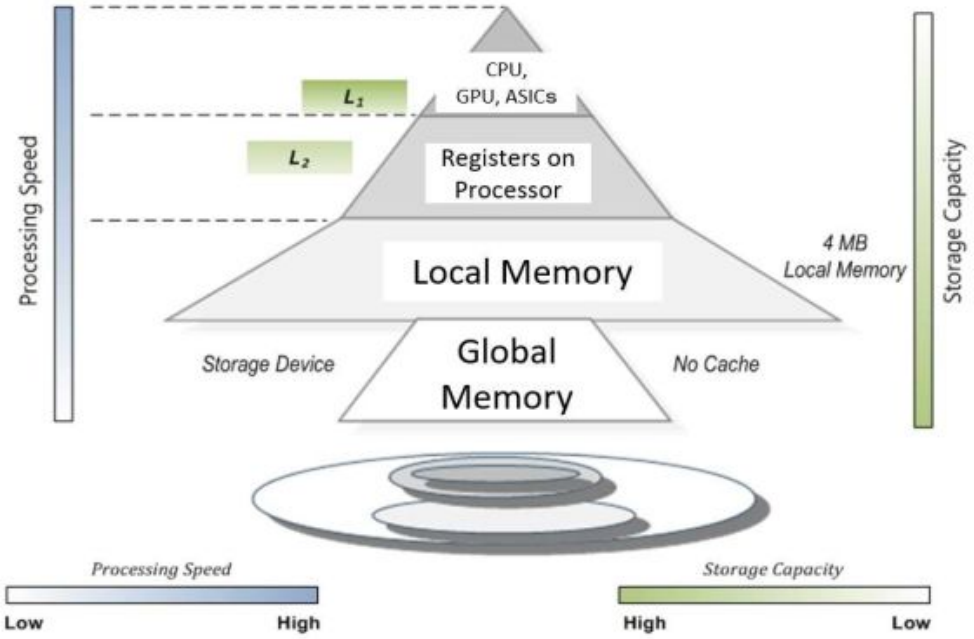


Fig-9 (b) Unbalanced computing system memory hierarchy

Figure 1(a) is a DTS based abstract system architecture for a high I/O intensive information system to achieve timeliness. The local memory connected to the CPU, GPU or ASICs via DMA is converted into a block I/O cache device, namely DTS cache by dividing it into two areas. This DTS cache concept is very unique and it brings excellent potential in I/O intensive application services. The L3 cache utilizes local memory by SDRAM to maintain operand which is required by blockchain algorithms and global space by the system memory on the motherboard books the new blockchain space by DTS cache policy. This brings a balance to the memory allocation and incremental storage capacity, so the design brings a balanced computation system environment.
The balanced memory architecture facilitates efficient resource utilization while an unbalanced memory hierarchy creates performance bottlenecks (Fig-9 (b)). Thus, a SKY- NET mining Rig uses the concise balance-based computer architecture which was proposed by Prof. Dr. Hiro Takahashi.

Centralized Rig machine control and Monitoring: Sky-Hive integrates "Orchestration of Optimization Workflow" (O2W), and enables every user to mine with the most efficiency easily. O2W provides multiple services, including a smart UI/UX and an in detail status and monitoring control system that meets the needs of everyone from large-scale operators to individuals which will optimize the user's profits in a stable manner.

O2W orchestrates the entire mining rig machine status, hash rate and its mining program using a centralized server.

Fig 10: Centralized Rig machine control and Monitoring

O2W provides the most robust and secure network via VPN to protect against external malicious threats. O2W also uses Artificial Intelligence with a Deep Neural Network that learns (O2WAI) the behavior of cryptocurrency rewards and its hash rate, and then recommends the most effective mineable coin every 12 hours. O2W also provides the function of status monitoring for each Rig machine, displaying environmental factors such as queue, temperature of GPU, Motherboard and/or degrading hash rate from overheating and so on.

Fig 11: One stop solution by SKY-NET.

Fig 12: SKY-NET mining firm

O2W functions details:

1. NUMBER OF MINING RIGS ONLINE/OFFLINE:

Information regarding the number of mining rigs online/offline will be monitored with the number of online and offline mining rigs that are installed in a mining farm.

2. MINING RIG 'NAME/ID':

The mining rig name/id will help the administrator identify specific rigs and on the basis of this name/id we can monitor the detailed information of that rig.

3. MINING RIG 'LOCATION ID':

The mining rig location id will help the administrator identify the location information of the specific mining rig so they know where the multiple mining rigs are installed (i.e. Mining Farm). Through the mining rig location id, the administrator can easily identify the location of a specific mining rig that requires physical maintenance etc.

4. MINING RIG 'IP ADDRESS':

The mining rig ip address will help the administrator identify the network location of a specific mining rig through its ip address.

5. MINING SOFTWARE:

The mining software will inform the administrator what specific mining software (Miner) is used by each mining rig. For example: Ethminer, XMR-STAK etc.

6. 'NUMBER OF GPUs' INSTALLED IN A MINING RIG:

The number of GPUs information will update the administrator about the total number of GPUs installed in a particular mining rig, and also update the current status of each GPU (i.e. Online/Offline), along with alerting the administrator when any GPU of a particular mining rig turns offline.

7. ELAPSED TIME SINCE MINING RIG PINGED ADMINISTRATOR'S MONITOR:

The above named entity will update the administrator about the elapsed time since the particular mining rig last contacted/pinged the administrator's monitor. This

entity will be required for the administrator to check the time difference between the last hash rates and current hash rates that are shown on the administrator's monitor.

8. ELAPSED TIME SINCE MINING RIG LAST REBOOTED:

The above named entity will update the administrator about the elapsed time since the particular mining rig last rebooted. This entity will be required for the administrator to monitor and notify the related personnel to know the specific reason for any unusual behavior in the particular mining rig which led to the mining rig being rebooted.

9. RX/TX:

The RX/TX is used to track the receiving and transmitting bandwidth consumed by each mining rig in the administrator's monitor. While mining, this RX/TX value is normally in kbps. If this RX/TX value increases higher than the normal value, it will point out that extra bandwidth is being utilized by some source that could be an attacker/hacker attacking the mining rig or some useless resources utilizing the bandwidth.

10. MINING RIG 'CPU TEMPERATURE':

The mining rig CPU temperature will update the administrator about the CPU temperature of each mining rig.

11. MINING RIG 'CPU RAM CONSUMPTION':

The mining rig CPU RAM consumption will update the administrator about the total RAM installed in each mining rig and also the amount of RAM consumed by that rig.

12. HASH RATES:

The hash rates entity will help the administrator know the total hash rates produced by each mining rig and also the hash rates produced by each GPU in each mining rig.

13. MINING RIG 'GPU TEMPERATURE':

The mining rig GPU temperature will update the administrator about each GPU's temperature in each mining rig.

14. MINING RIG 'GPU POWER CONSUMPTION':

The mining rig GPU power consumption will update the administrator on the percentage of power each GPU consumes out of 100% consumption on each mining rig.

15. MINING RIG 'GPU FAN SPEED':

The mining rig GPU fan speed will update the administrator on each GPU's fan speed in each mining rig.

16. MINING RIG 'GPU CORE CLOCK':

The mining rig GPU core clock will update the administrator on each GPU core clock in each mining rig.

17. MINING RIG 'GPU MEMORY CLOCK':

The mining rig GPU memory clock will update the administrator on each GPU's memory clock in each mining rig.

18. MINING RIG 'GPU ARCHITECTURE':

The mining rig GPU architecture will update the administrator on each GPU's architecture type (i.e. NVIDIA or AMD) in each mining rig. Only AMD GPU architecture allows its users to flash the GPU's custom BIOS to increase its performance. Since, the majority of the miners who use AMD GPU's architecture to mine a cryptocurrency must change it's default BIOS to a custom BIOS in order to increase the mining hash rates, this entity will help the administrator to identify each GPU's architecture in each mining rig.

19. MINING RIG 'GPU NAME':

The mining rig GPU name will inform the administrator of each GPU's full name (manufacturer/type) in each mining rig. For example: Sapphire Nitro+ Radeon RX-580, ROG STRIX GTX 1080TI O11G Gaming etc.

20. MINING RIG 'GPU RAM CONSUMPTION':

The mining rig GPU RAM consumption will update the administrator about the total RAM installed in each GPU and also the amount of RAM being consumed by that GPU in each mining rig.

21. MINING RIG 'GPU MEMORY TYPE':

The mining rig GPU memory type will update the administrator on each GPU's memory type (Vendor) (i.e. Samsung Memory, Micron Memory, Elpida Memory, Hynix Memory etc.) in each mining rig. This entity will be a requirement on the administrator's monitor because on the basis of different memory types, different custom BIOS settings will be required to increase the GPU's performance if it is from AMD GPU's architecture.

22. MINING RIG 'GPU BIOS ID/NAME':

The mining rig GPU BIOS id/name will update the administrator on each GPU's BIOS identity in each mining rig. This entity specifies the GPU model and all the details of the BIOS information which is required to customize the BIOS of that GPU if it is from AMD GPU's architecture.

23. MINING RIG 'GPU DRIVER VERSION':

The mining rig GPU driver version will update the administrator on each GPU's current driver version in each mining rig. This entity will help the administrator to check whether the current installed GPU driver is the latest or not.

24. MINING RIG 'OPERATING SYSTEM':

The mining rig OS will update the administrator about the current operating system (OS) and its version (i.e. Windows 10, Ubuntu v16 etc.) on each mining rig.

O2W Mining Rig Controlling Options:

1. MINING RIG 'SETUP MINING CONTROL SOFTWARE ':

The setup mining control software will provide the administrator centralized control of the mining software of each mining rig. The mining control software requires different input parameters to be inserted by the miner in order to start the mining. For example: Pool Address, Wallet Address, Mining Currency/Algorithm and other important parameters. So this control will provide the administrator the ability to insert the above mentioned parameters in the mining control software of each mining rig from the administrator's monitor.

2. MINING RIG 'REBOOTING' CONTROL:

The mining rig rebooting control will provide control to the administrator to reboot

each mining rig with just a simple click. This controlling entity will refresh the complete mining rig if required.

3. MINING RIG 'START/STOP' CONTROL:

The mining rig's start/stop control will provide control to the administrator to start and stop each mining rig with just a simple click. This controlling entity will start or stop the complete mining rig if required.

4. 'GETTING GPU BIOS' CONTROL (FOR AMD GPUs ONLY):

This control will provide the administrator the ability to generate the current BIOS from each GPU installed in each mining rig.

5. 'UPLOADING GPU BIOS' CONTROL (FOR AMD GPUs ONLY):

This control will provide the administrator the ability to upload the modified BIOS to each GPU installed in each mining rig.

AI-Based cryptocurrency real-time market value evaluation

All of the rigs are facilitated by the O2W central server. An AI-based learning module is installed on O2W and acts in the following function.

Market value sensing:
O2W server has a crawler to observe the market value of each cryptocurrency.

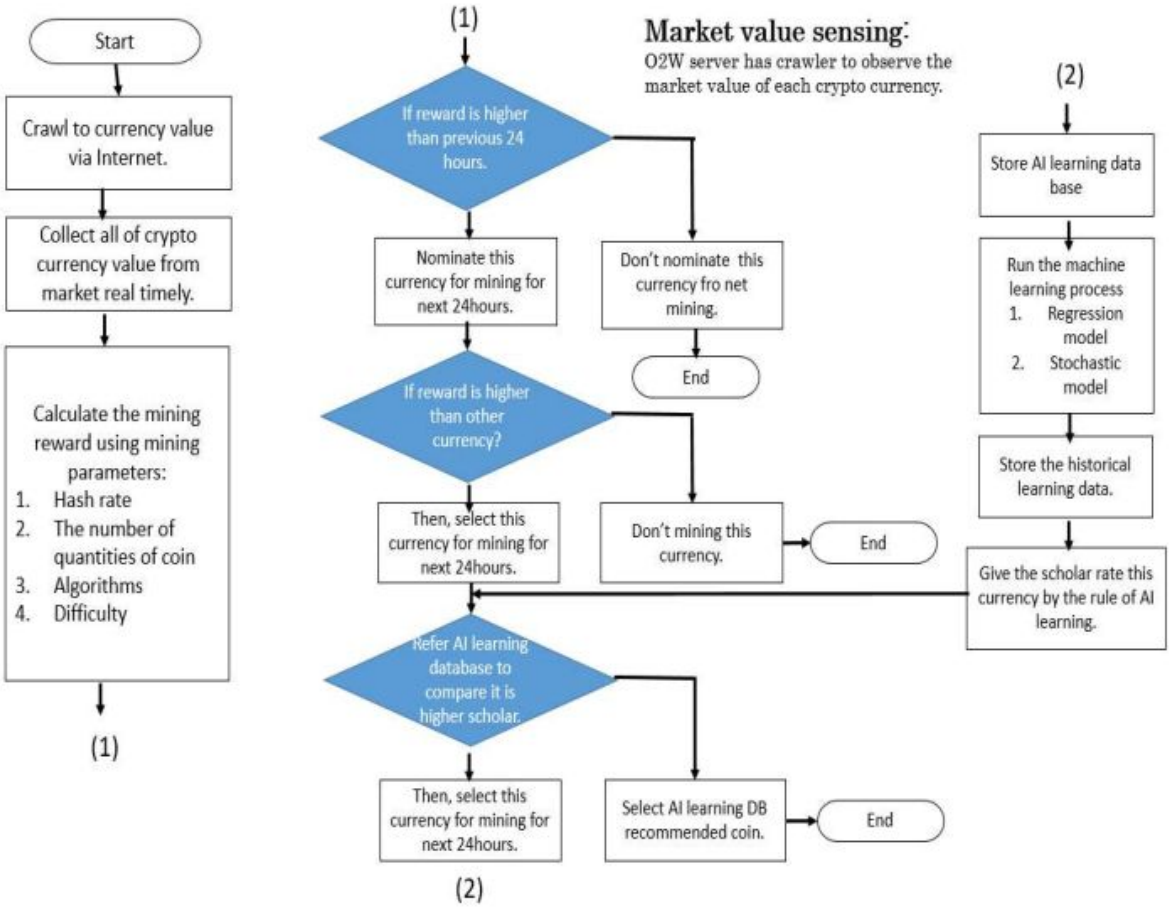


Fig -13 AI Crypto currency evaluation procedure

Fig -13 shows the flowchart of O2W AI Crypto currency evaluation. Its learning DB compares the market value of each cryptocurrency and decides the most profitable cryptocurrency for the next 24 hours. A SKY-NET mining user obtains the most profitable mining production.

Fig -14 shows a Neural Network Schema for Cryptocurrency reward decision making. There are two steps in building a new machine learning model. The first step is training, which takes in a dataset as input and adjusts the model weights to increase accuracy for the model. The second step is testing, which uses an independent dataset for testing the accuracy of the trained model.

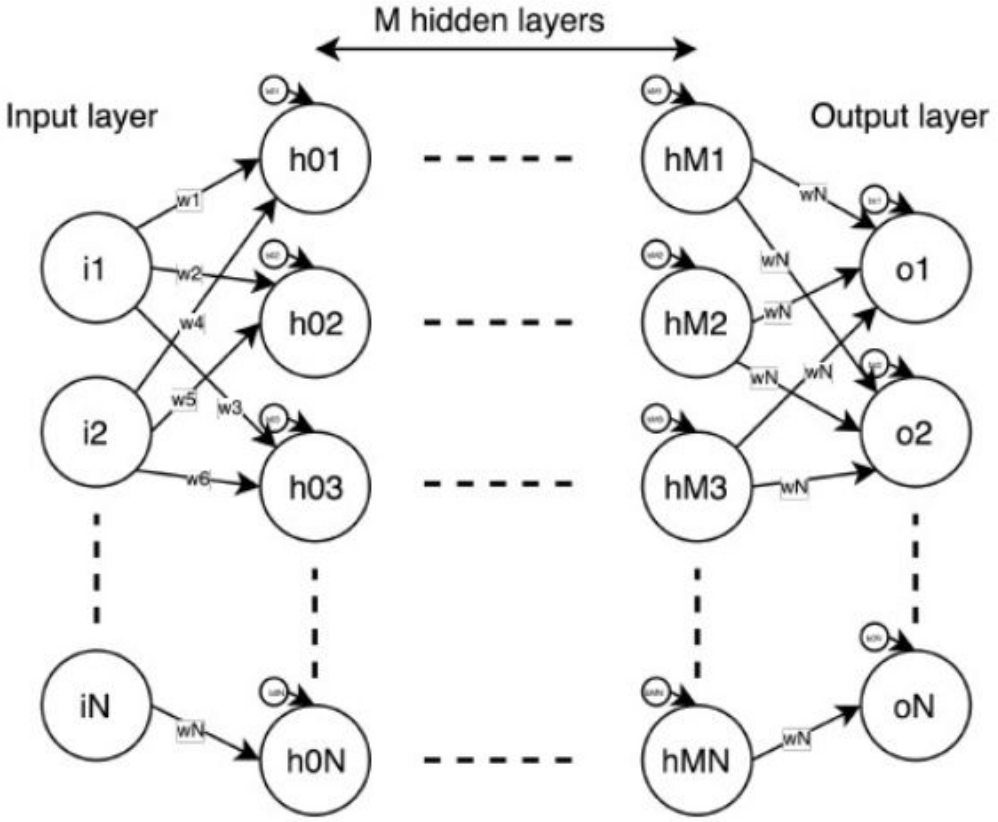


Fig -14 Neural Network Schema for Crypto currency reward decision making

The second step is testing, which uses an independent dataset for testing the accuracy of the trained model. This second step is necessary to validate the model and to prevent a problem known as overfitting. An overfitted model is very good at a particular dataset, but is bad at generalizing for the given problem. Once it has been trained, a ML model can be used to perform tasks on new data, such as prediction, classification, and clustering. There is a huge demand for machine learning models, and companies that can get access to good machine learning models stand to profit through improved efficiency and new capabilities. Since there is strong demand for this kind of technology, and a limited supply of talent, it makes sense to create a market for machine learning models. Since machine learning is purely software and training it doesn't require interacting with any physical systems, blockchain can be used for coordination between users.

Custom design for individual SKY-NET Mining users:
SKY-NET also provides individual custom mining RIG evaluation and AI mining programs by custom order. There is a six month required minimum monitoring the mining RIG for analysis on how to make a profitable mining operation for the

future.

SKY-NET User Dashboards

A SKY-NET user can access SKY-NET's User Dashboards on the website. Users are able to register their subscription and categories according to their preferences and mining needs. Once a user subscription is active, users can login and gain access to their user dashboard. This dashboard is very easy to use and has a range of management tools. In fact, by using these tools SKY-NET users are able to manage their complete mining model.

Moreover, users can see an overview of information, from the current currency being mined to altcoins, and the ability to update a user's preference and mining plan within six months, gaining access to SKY-NET's arbitrage historical big-data.

The SKY-NET User Dashboard gives recommendations to update or modify user mining descriptions with the most profitable arbitrage coin exchange through SKY-NET DNN (Deep Neural Network), which is an arbitrage machine learning unit.

A SKY-NET User can also use the search toolbar to find a specific mineable currency and the potential the currency may have if listed in their profile.

A SKY-NET user can organize their entire mining workflow environment, as per their mining preference.

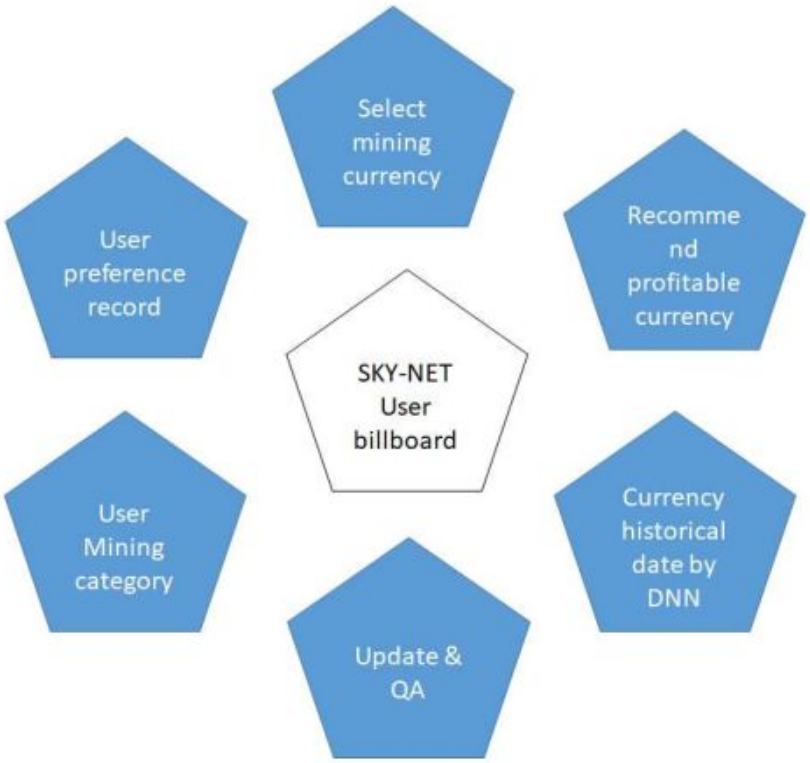


Fig 15: SKY-NET User Dashboard

Both iOS and Android applications will be developed with limited options for each user segment. SKY-NET will also have a section on where and when each user can buy and sell their SKYCoin.

4-2 SKY-Host / SKY-Cloud

SKY-NET provides the SKY Host / SKY-Cloud service. We are preparing the lowest cost electricity facility to maximize your mining profits. The countries which we are arranging this in are Azerbaijan, Kazakhstan, Uzbekistan and so on, and will allow the SKY-Host service to offer rates from 6 cents per KWh.

SKY-Cloud is our managed centralized server for installing, updating mining ware and GPU firmware, and observation of the environment including hash rate and temperature.

4-3 SKY-Exchange:

SKY-Exchange is a service for SKY-NET Users and miners to utilize to the maximum effect the cryptocurrency which they have obtained through SKY-Hive services. SKY-Exchange connects to SKY-Wallet which is held by users and does the following services:

1. Cryptocurrency to cryptocurrency exchange service. (Bitcoin, Ethereum, Monero and SKYCoin)

2. Cryptocurrency to USD exchange service.

3. Cryptocurrency to Debit card service. (SKY-Exchange will offer the debit card service beginning in 2019, SKY-Net users can use cryptocurrency for general shopping and e-commerce.)

4-4 SKY-DEX

SKY-DEX is the decentralized application interface. Any decentralized app should connect through this interface. For instance, when SKY-NET collaborates with a Debit Card servicer, SKY-NET users can utilize the debit card service with cryptocurrency including SKYCoin. Details are shown in the following fig 16.

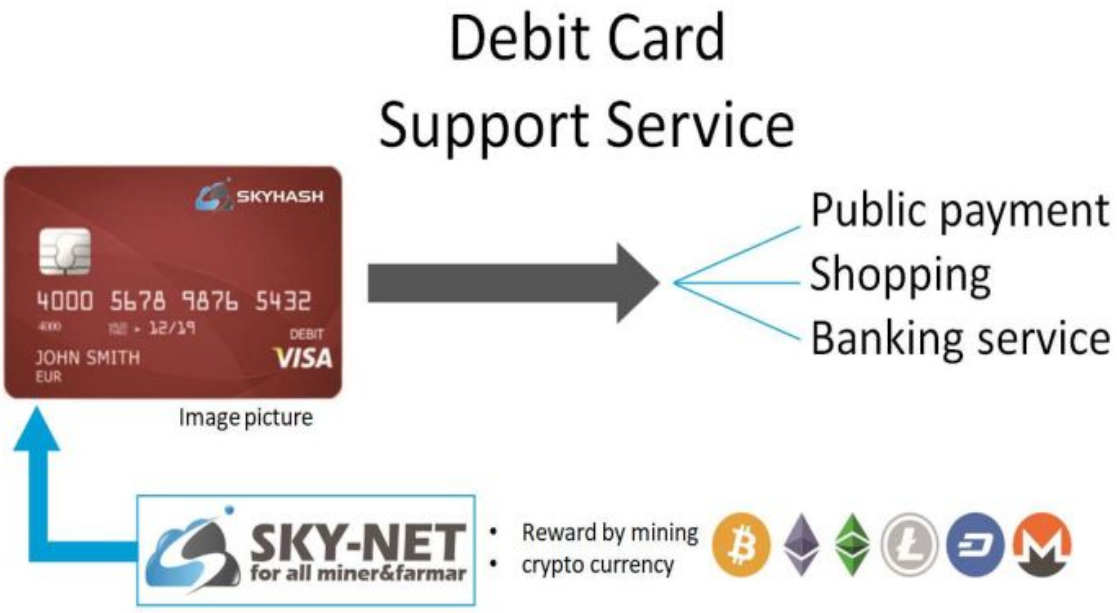


Fig 16: Debit card support service

The partner of SKY-NET provides Debit card support services for users of SKY-NET using Cryptocurrency settlement in the global market.
Settlement can be done directly worldwide by partnering with cryptocurrency kept by SKY-NET with an external service. SKY-NET users can use BTC and ETH which are mined by applying procedures as they are for settlement.
Thus, SKY-DEX is the service of any decentralized application. All decentralized applications require the certification process to connect to SKY-NET. Users can receive any application service from DEX providers with a secure policy.

An illustration of the SKYCoin distribution:

SKY-NET users receive cryptocurrency rewards through the cycle of SKY-NET as shown in Fig-17. This reward cycle boosts up the amount of volume of any cryptocurrency through SKY-Host, Sky-Cloud even if the user doesn't have a mining rig or facility. SKY-Hive enables optimization for the highest hash rate of each cryptocurrency. In the case where users already has their own mining rig, SKY-NET allows them to connect to SKY-Hive optimized solutions and obtain the highest hashrate with rewards from them.

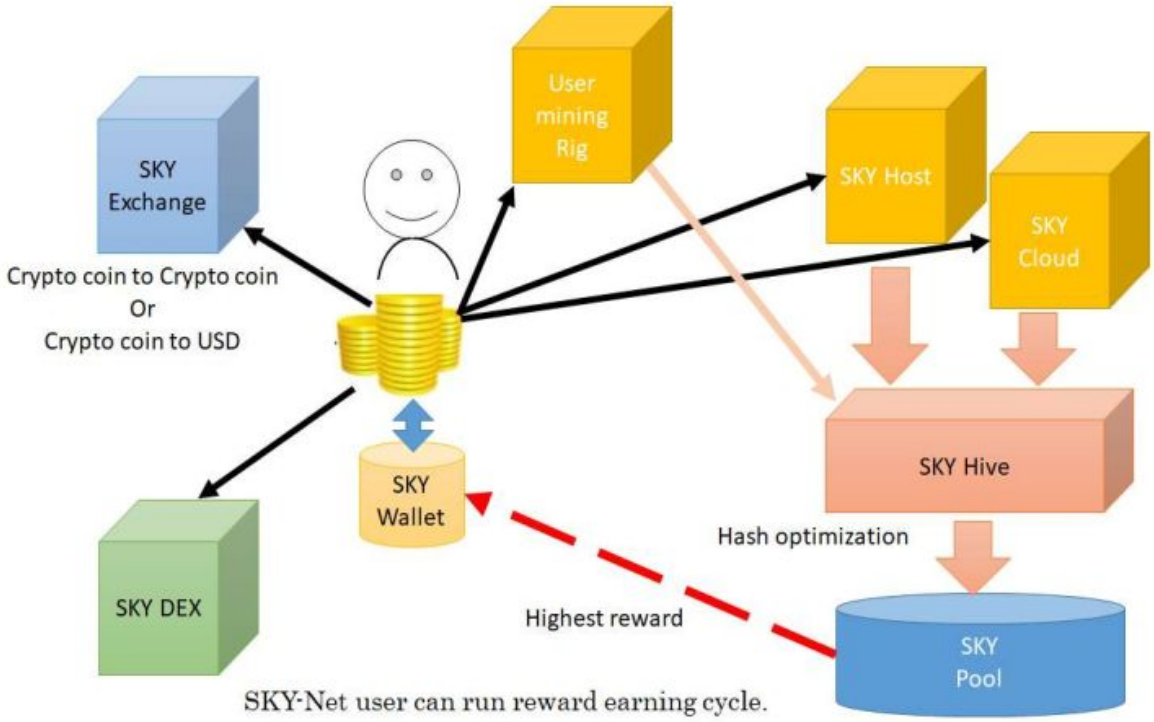


Fig 17: SKYCoin2 distribution

5. SKYCoin2, details of Original Blockchain:

The first version of SKYCoin2 which is a mineable cryptocurrency utilizes ERC918. In the future, we are planning to launch SKY cryptocurrency on its own original blockchain. It will have a Proof of Work consensus algorithm which will use SHA-256 hashing algorithm by 2020.
The original Blockchain SKYCoin2 will be generated after merging the SKYCoin ERC223 token and ERC918 RigCoin. Below is sample code of a simple block and blockchain in Java coding language.

Fig-18 shows a simple block.

```java
import java.util.Arrays;


public class Block {

    private int previousHash;
    private String[] transactions;
    private int blockHash;


    public Block(int previousHash, String[] transactions) {
        super();
        this.previousHash = previousHash;
        this.transactions = transactions;

        Object[] contents={Arrays.hashCode(transactions), previousHash};
        this.blockHash=Arrays.hashCode(contents);
    }

    public int getPreviousHash() {
        return previousHash;
    }
    public void setPreviousHash(int previousHash) {
        this.previousHash = previousHash;
    }

    public String[] getTransactions() {
        return transactions;
    }
    public void setTransactions(String[] transactions) {
        this.transactions = transactions;
    }

    public int getBlockHash() {
        return blockHash;
    }


}
```

Fig 18: Original block chain programming code

There are 2 blocks created in the picture below. The genesis block and the second block are shown as Fig-19.

```
import java.util.ArrayList;


public class Main {

    ArrayList<Block> blockChain=new ArrayList<Block>();

    public static void main(String[] args) {
        try{
            String genesisTransaction[]={"Nabeel sent Asif 3 Bitcoins, Kamran sent Nabeel 3 Bitcoins"};
            Block genesisBlock=new Block(0, genesisTransaction);

            String secondBlockTransaction[]={"Nabeel sent 1 Bitcoin to CZone, CZone sent 0.1 Bitcoin to Nabeel"};
            Block secondBlock=new Block(genesisBlock.getBlockHash(), secondBlockTransaction);

            System.out.println("Genesis Block Hash:");
            System.out.println(genesisBlock.getBlockHash());

            System.out.println("\nSecond Block hash");
            System.out.println(secondBlock.getBlockHash());
        }
        catch(Exception e){
            e.printStackTrace();
        }
    }
}
```

Fig 19: genesis block and the second original block chain code

Here is a diagram of mining through the SKY-NET platform with the following steps (Fig 20 shows this process).

1. The users first register themselves on the SKY-NET platform
2. They will then receive the wallet
3. Now the user can connect themselves to the Sky-Hive automated optimization system. SKY-Hive will be optimized with DTS L3 cache which will increase profitability on mining rigs. An additional part of SKY-Hive is automatic optimization of the user's mining rigs
4. Sky-Hive is connected to SKY pool, where users mine together
5. The mined coins are then delivered to each user's wallet accordingly

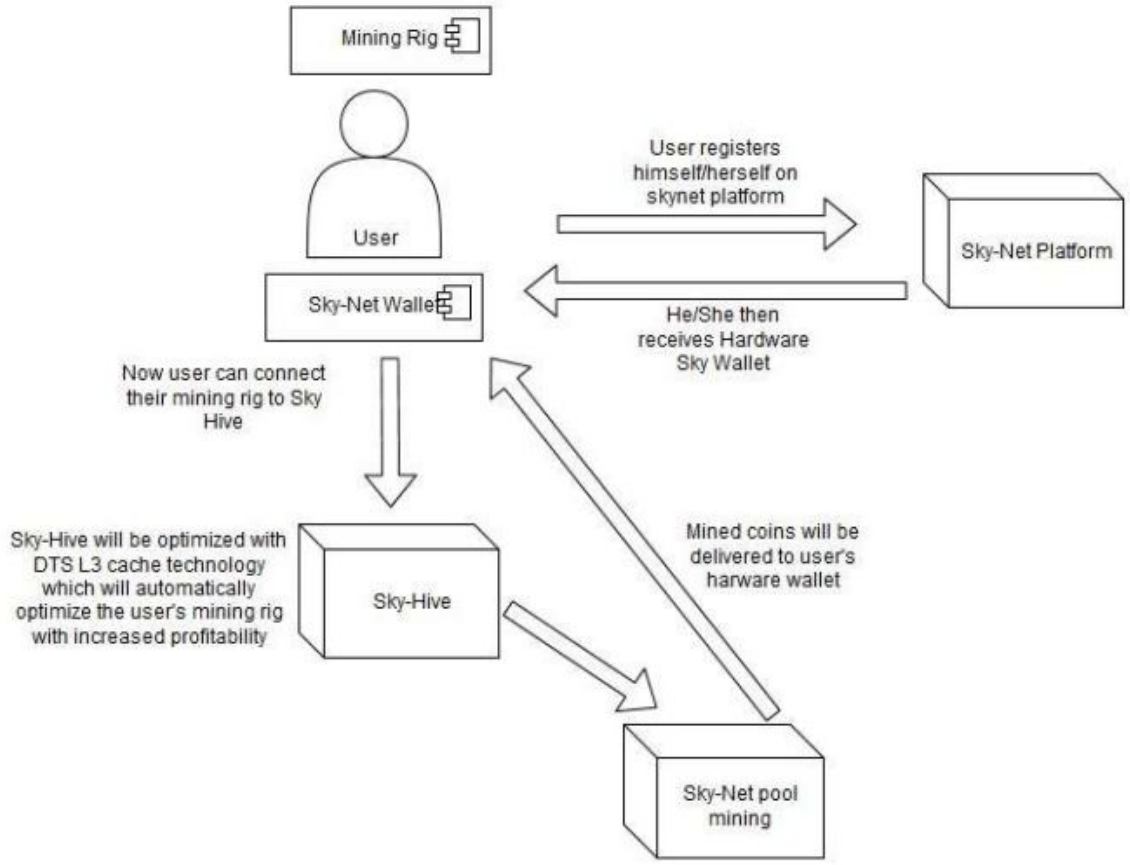


Fig 20: SKY-NET platform steps

The following Diagram shows the process of merging the two coins in Fig 21.

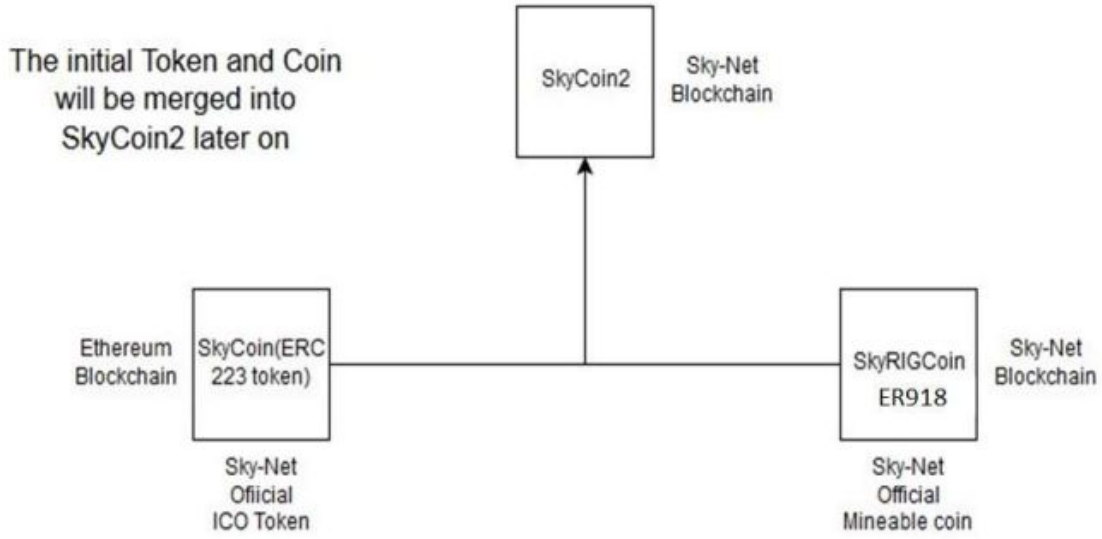


Fig 21: SKYCoin marge process

6. Blockchain, token creation and technical overview.

Smart Contracts:

The smart contract shown in Fig-22 is a phrase used to describe computer code that can facilitate the exchange of money, content, property, shares, or anything of value. When running on the blockchain, a smart contract becomes like a self-operating computer program that automatically executes when specific conditions are met. Because smart contracts run on the blockchain, they run exactly as programmed, without any possibility of censorship, downtime, fraud or third-party interference.

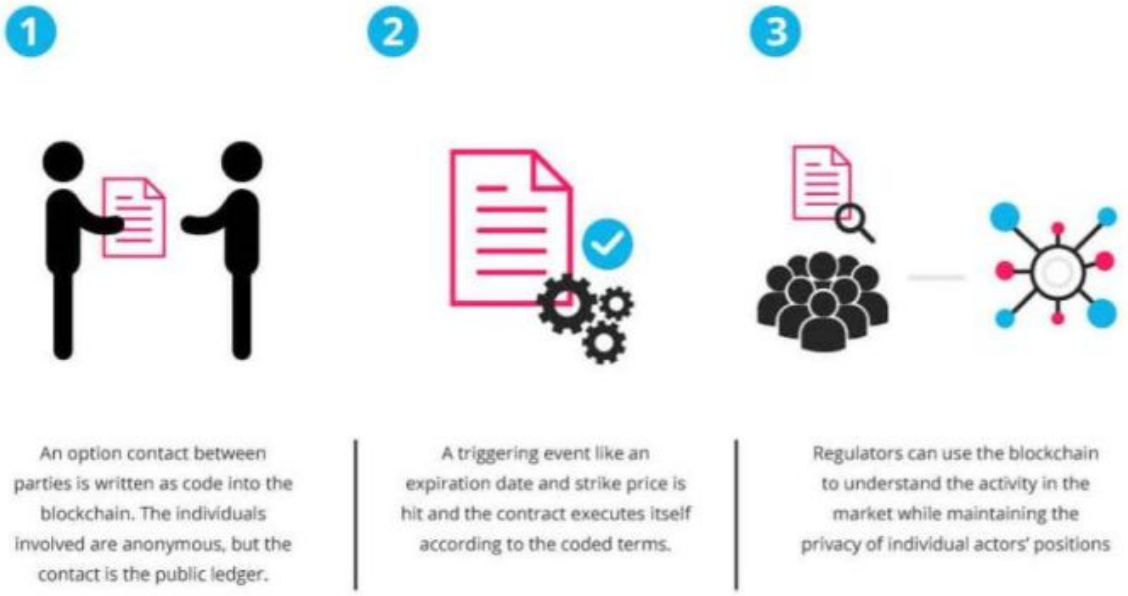


Fig 22: Smart contract

The SKY-DEX application will be built upon an Ethereum consortium type blockchain. The Smart Contract initiates when candidates earn a SKYCoin. Once it has reached that level, the smart contract will automatically run and create a new transaction into the ledger and assign the respective SKYCoin to the candidate's block. This becomes all possible through the smart contract because it has the candidate's Ethereum account and public address.
The smart contract is written and stored on the Ethereum blockchain and is used to record transactions and store the block.
The smart contract is initiated by the system automatically, once a transaction of the DEX application starts earning their SKYCoin (s) - then they will be assigned.

The smart contract initiates not only once, but many times. It just depends on when the DEX Application transaction runs on SKY-NET.

Consensus Proof-of-Authority

Proof-of-Authority is a newer concept in the blockchain world where you have many pre-approved authority nodes (called sealers, think of these as mining nodes). Any new node that you want to add must be voted on by the currently approved set of authority nodes; this gives you full control over which nodes can seal blocks (mine) on your network. To make sure a malicious signer cannot do too much harm to the network, any signer can sign at most one of many consecutive blocks (floor (SIGNER_COUNT / 2) + 1). The same consensus is applied when an authority node is removed from the network.

The Ethereum Proof-of-Authority protocol is called Clique and is well described in the Clique Github. In the Ethereum Clique proof of authority mechanism, the community can select authority nodes that can authorize transactions. These will be selected by people who contribute most to the community and build out a portfolio of references first. To add a new authority node, all the current authority nodes must agree. If we build on the Ethereum consortium network with Proof-of-Authority, the consensus is to be benefited from the lower network costs, latency and scalability problems.

Proof-of-Authority provides many advantages for private chains:
It provides more configurability regarding block times and latency, it is not computationally expensive, and it is more secure because of how authority nodes are added.
Regarding the security and safety, SKY-NET is determined to be free from the possibility of hacker attacks, especially as our database consists of personal information and the information regarding token allocation.
Inside the blockchain, the Proof-of-Authority consensus offers more security compared to Proof-Of-Stake, and more power than Proof-Of-Work. In our view, it is more secure (since an attacker with unwanted connection or hacked authority cannot overwhelm a network potentially reverting all transactions), less computationally intensive (mining with difficulty which provides security requires lots of computation), provides more performance (Aura consensus provides lower transaction acceptance latency) and is more predictable (blocks are issued at steady time intervals.)

7. Introduction of Board Members

We have an excellent mix of experience and youth among our team who are committed to making the company an enormous success. Here we present 6 out of our 20 team members currently involved in our project.

Founder & CEO: Mr. Shinsaku Imai
Mr. Imai has been interested in blockchain since 2014, and has made several consulting business products. In 2015, he created a cryptographic currency exchange system and the first Japanese multiple currency wallet. He started mining, which is the root of the blockchain in 2016. In February 2018 "SKYHASH OÜ" was founded and they provided consulting services to several mining farms in Asia and Europe.

Chief Mining Engineer: Mr. Yuhi Niimi
Mr. Yuhi Niimi is responsible for the mining business of SKY-HASH. Beginning

in 2016, he studied and stabilized the tuning and stabilization centered around AMD GPUs to set up and operate a mining farm. In addition to tuning, familiarization of the composition and parts of the entire system helped them achieve the highest domestic mining efficiency. Sharing his knowledge as part of the SKY-NET development team, he is responsible for the mining farm operation of SKY- HASH.

Technical Advisor: Prof. Dr. Hiro Takahashi

Prof. Dr. Hiro Takahashi obtained his doctorate in engineering from the Tokyo Institute of Technology. At the University of Tokyo, as a visiting researcher, he studied high-speed transaction processing from the crowd in the field of human environmental science. His doctoral thesis advocates systematization of low latency autonomous distributed nodes as "multi-layered cache type autonomous decentralized system and its application Web application firewall WAF". In 1990, he participated in the development of the world's first high-speed shared BUS supercomputer "Radial Super Computer System Bus Architecture" in the US and Japan. He has participated in various projects as a professional in autonomous decentralized system architecture. DTS (Data Transmission System) is his international patent and he has experience in commercializing L3 Cache, L4 Cache devices and selling them to the global IT market. In recent years, at the IEEE International Conference GCCE 2018, they announced "We demonstrated the high speed method of SHA 256d hash rate by L3 cache with BitCoin mining, and presented it at the conference as a new blockchain technology". In this way, he has helped create some of the world's most advanced technology in his field. He was selected as a technical advisor on the SKY-NET project to evaluate the SKY-NET fundamental platforms, its related technologies and help its comprehensive implementation.

Technical Principal Engineer: Mr. Taka Inoue

Mr. Taka Inoue majored in mechanical engineering in University. He is a programming engineer mainly specializing in built-in C language, C#, Dot Net systems, Web Applications and Databases. He has experience creating bots for finance and automation tools. He has experience as a project manager and is in charge of support and the development of the SKY-NET front end and back end cloud system.

Chief infrastructure engineer: Mr. Daisaku Nishikawa

Mr. Daisaku Nishikawa has experience in operating and maintaining infrastructure in a large server company. He independently worked in management consulting involving initial server construction of WEB services such as EC. He is primarily in charge of SKY-NET's network construction and reviewing security aspects and operational costs throughout services. He also has experience mining himself, and is supporting SKYHASH with his wide range of knowledge.

Chief Application engineer: Mr. Shingo Asano
Mr. Shingo Asano has lived in Estonia since 2008. He works with HTML, CSS, Java script, PHP, SQL, Python, Shell Script as a front end / back end web developer. He began consulting in Estonia from 2010, succeeding in making various proposals to business customers and forming personal connections around the world. Currently, he supports a number of IT companies and a large number of mining farms in Estonia.

8. Road Map

The development of the Company's platform started in 2017. More than 2 Million dollars have been invested in developing and carrying out the proof of concept. In this section, the road map illustrates our future releases and expansions, with a detailed explanation shown in Fig 23.

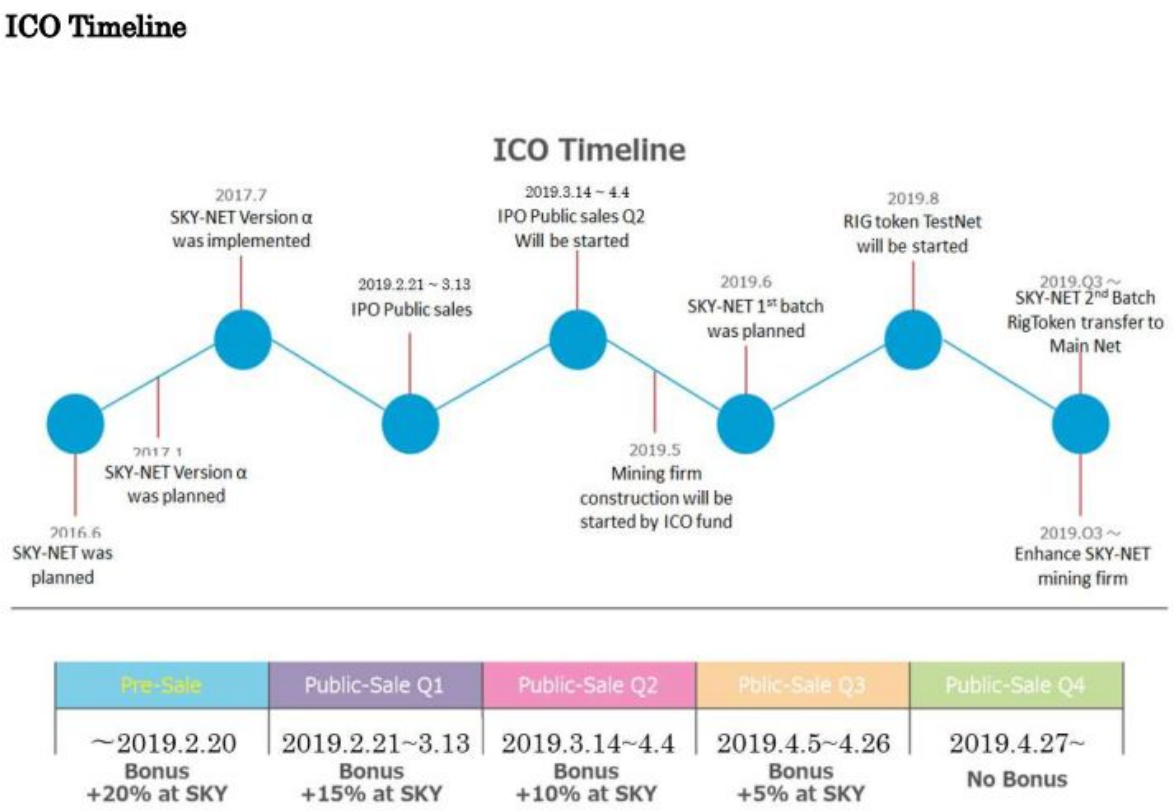


Fig 23 ICO time line

Pre Sales of ICO: Until 20th FEB 2019
The pace and scope of ICO Pre-Sales OPEN from 2018 and it is open until 20th FEB 2019.

Public Sales of ICO starting from 21st FEB 2019 to 13th MAR 2019
The pace and scope of ICO Public Sales OPEN from 21st FEB 2019 until 13th MAR 2019 and Q2 of ICO sales start from 14th of MAR 2019 to 4th of APR 2019.
The schedule of Public Sales of ICO is planned as Q3 from 5th of APR 2019 to 26th of APR 2019 and Q4 from 27th of APR 2019.

The Bonus coin for each Quarter is as following:
Pre-Sale +20%
Public-Sale Q1 +15%
Q2 +10%
Q3 +5%
Q4 No Bonus

From May 2019, ICO funds are used to start the mining firm and related facilities at lowest-cost electricity countries.
From June 2019, the SKY-NET 1st batch is planned and on Aug 2019, RIG token ERC918 based Test Net will be started.
From Q3 2019, SKY-NET 2nd Batch, RigToken transfers to Main Net and Enhancements to the SKY-NET mining firm.

Product & Service Expansion:
Android OS, iOS App are supported by the SKY-NET product line including the AI arbitrage recommendation on the user dashboard. GPU hash rate optimization mining ware will enhance user mining hash power on the current GPU card at the beginning stage. Low cost electricity will be offered to users to reduce the total mining expenses.

Programming and Advanced Technology Expansion
The SKY-NET billboard website is being developed using PHP and a central Rig management server is running on Linux infrastructure. Blockchain and other complex functionalities were developed using Java and Python. We plan to launch mining GPU hardware using DTS layer kernel drivers to maximize the GPU hash rate at a later date.

Bringing on additional partners:
We will create collaborations with cryptocurrency exchanges, along with debit card and credit financial banks around the world.
We also plan to establish the blockchain mining enhancement development center for SKY-NET users. We aim to plan and scale-up our underlying mining research

and development engineers so it can support the load resulting from our reward effectiveness system growth. We also aim to evaluate the total amount in growth of SKY-NET users reward income and ROI by mining investment.
We will expand the regional support center in the US, Canada, EU, GCC and all of ASIA by 2022.

9. Token Economics

This section describes various aspects of our Network, the SKYCoin Allocation, and the economics of both.
Considerable thought and a huge amount of time has been spent on finalizing the economics of our tokens, which will provide long-term stability and growth. The vision is to attract long-term investors through our coin sale.

SKYCoin Allocation
SKYCoin will be distributed to 6 major participating groups in the SKYCoin Network. This allocation would be written into the blockchain block itself, which would be operated through three recognized signatories.

Distribution Ratio For the ICO

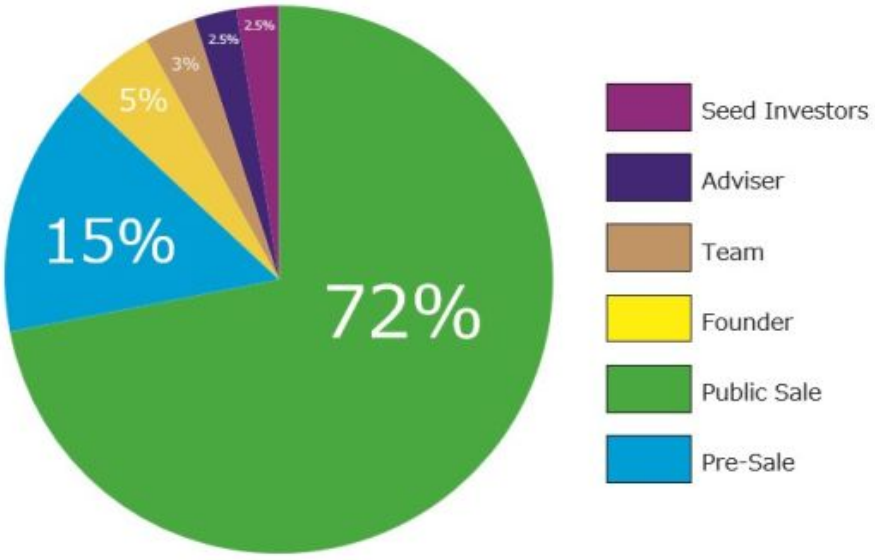


Fig 24: Distribution Ratio For ICO

Fig 24 shows the Distribution Ratio for the ICO. Each group is critical to our funding the ecosystem's creation, development, growth, and maintenance:

• 15% of the SKYCoin will be distributed to the candidates and investors for Pre-sales.
- For providing correct information on our platform, providing details of the referees, taking a technical evaluation of the platform and much more, etc.

• 72% of the SKYCoin will be distributed to the people for Public Sale.
- For any investor or business organization and its entities.

• 5% of the SKYCoin will be distributed to the Founder (Blockchain based allocation)
- For funding the platform development, business development, partnerships, support, and more.

• 3% of the SKYCoin will be distributed to Technical team members (Blockchain based allocation, Mining Optimization and management)
- For funding the platform development and more.

• 2.5% of the SKYCoin will be distributed to Advisers (business and technical advisory task, market development and more).

• 2.5% of the SKYCoin will be distributed to Seed Investors who invest at an early stage of the SKY-HASH company.

SKYCoin also has needs for fundraising. The Company requires significant funding to develop, launch, and grow the Company's network. We must develop all the software required (this includes: the SKY-NET wallet, SYK-Hive, SKY-Exchange, SKY-DEX and billboard website and multiple Decentralized Apps.

The ICO funds breakout is shown in Fig 25.

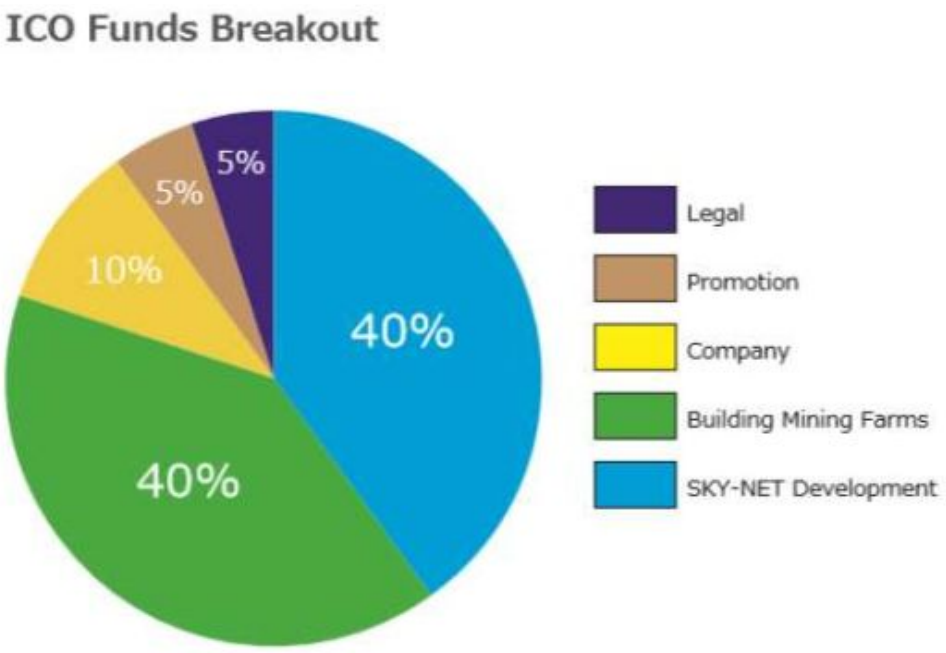


Fig 25: ICO funds breakout

The offering of SAFTs:
40% of usage of fund will be utilized for SKY-NET development.
40% of usage of fund will be utilized for Building of the Mining firm.
10% of usage of fund will be utilized for Operation of the company.
5% of usage of fund will be utilized for Advertisement and promotion.
5% of usage of fund will be utilized for legal operations

10. Details on issuing tokens:

SKYCoin:
SKYCoin (SKY) is the utility token SKY-HASH issues in the ICO, which is used for the reward token, and will be used as the incentive, reward promotion by Staking as such within the SKY-NET ecosystem. SKYCoin will be issued up to about 60 million pieces and fifty percent from total issues of SKYCoin (30 million pieces) is assigned by the ICO.
SKYCoin holders can gain the right to mine in the mining farm built by a part of the funds raised, and also gain pre-mined SKYRIGCoin.

++
Specification of SKYCoin (SKY)
The number of issued coins =60,000,000 pieces

The number of issues in ICO=30,000,000 pieces
Selling price per coin = 1 Euro
Purchase currency = ETH
Published type of coin = ERC223 or ERC777
Soft cap = 20,000 ETH
Hard cap = 300,000 ETH
++

SKYRIGCoin(SKY2):
SKYRIGCoin (SKY2) is a mineable coin which utilizes an original blockchain. SKYCoin owners can participate in a pre-mining term which is the first six months before the public SKY2 mining operation.

++
Specification of SKYRIGCoin(SKY2)
Publication of method of mining (PoW)
Published type of coin = ERC918 and later moving to a SKY Original Blockchain
Start of mining at Q3 2019
General mining open from Q4 2019
++

SKY-NET provides two types of coins. The advantage to the SKYCoin owner is obtaining the chance of pre-mining for the SKY2 Rig coin. The exchange rate of both coins will be announced by the SKY-NET exchanger billboard.
Eventually, the two coins will be merged to SKY2Coin in 2021 as planned.

The Company's team is conducting an offering of SAFTs (see the legal section of this document) through our partner exchange. We have already started reaching out to relevant exchanges. We will notify all the stakeholders once we finalize on the exchange.

This offering is happening in three parts:

(1) A sale for early believers = 1,000,000 USD:
We understand the risk that early believers would be taking to participate in this sale. However, the initial phase of this sale would be rewarding for all participating investors & early believers. This sale would run at a flat discount rate of 70% with no vesting schedule. Discounts for the rest of all the phases of the SKYCoin also would be less and tied to a vesting schedule.

(2) A Pre-ICO sale for institutional investors with the Hard cap = (30% / (30% +57%)) from 300,000 ETH:
Most of the proceeds from the earlier round would be invested into our sales and

marketing for our ICO. Our aim is to specifically target institutional purchasers. The amount targeted will assure us that the project deliverables could be completed on time and that we have enough resources to support it.

(3) ICO Sale to the public with Hard cap = (57% / (30% +57%)) from 300,000 ETH:

This phase would be targeted to smaller purchasers and the public. Recruitment communities across the globe would be our primary target for this segment. This phase of the sale is important for two reasons. Firstly, any funds raised would speed up the development and expansion of the Company's ecosystem which would ensure that we stay well ahead of our competition. Secondly, it would enable us to reach out to the recruitment community to create a market buzz about our ecosystem.

Broad Token Sale approach:

We hope to bring together a large and diverse group of purchasers from around the world who would want to work closely with us to build our powerful recruitment platform. We are primarily seeking strategic investors who have something of high-value and unique to offer. We also wish to reach a broad range of investors. We will be currently seeking out people from diverse backgrounds and skill sets. We want investors who can add value, share their skills, their knowledge, and their networks to achieve our success.

We have structured our token sale to reward a large group of people who can help us build our network. We aim to achieve this selling our SKYCoin for, in our opinion, a much lower price than its worth.

11. RISK FACTORS

THIS SECTION ON RISK FACTORS IS NOT AND DOES NOT PURPORT TO BE A COMPLETE ENUMERATION OR EXPLANATION OF THE RISKS INVOLVED WITH THE PURCHASE OF SKYCOIN. THERE MAY BE ADDITIONAL MATERIAL RISKS THAT THE DIRECTORS DO NOT CURRENTLY CONSIDER TO BE MATERIAL OR OF WHICH THE DIRECTORS ARE NOT AWARE. THE FOLLOWING THEREFORE HIGHLIGHTS CERTAIN RISKS TO WHICH THE COMPANY IS SUBJECT TO AND WHICH THE COMPANY WISHES TO ENCOURAGE PURCHASER TO DISCUSS WITH THEIR OWN PROFESSIONAL ADVISORS.

Prospective SKYCoin purchasers should conduct such independent investigation and analysis regarding this Company, SKYCoin and all other relevant market and economic factors as they deem appropriate to fully evaluate the merits and risk of their purchase.

The Company and its Directors disclaim any responsibility to advise purchasers of SKYCoin of the risk and considerations associated with the purchase of SKYCoin as they exist at the date hereof or from time to time hereinafter.

Each prospective purchaser of any SKYCoin must determine, based on his/her own independent review and such professional advice (including, without limitation, tax, accounting, credit, legal and regulatory advice) as it deems appropriate, that the purchase of SKYCoin is appropriate and suitable for it, notwithstanding the clear and substantial risks inherent with the purchase of SKYCoin.

You should consult with your own legal, regulatory, tax, business, investment, financial and accounting professional advisors to the extent that you deem it necessary, and make your own decisions including decisions regarding the suitability of this purchase based upon your own judge and upon advice from such professional advisors as you deem necessary and not upon any view expressed men by any party mentioned in this Whitepaper.

The purchaser of a SKYCoin should be capable of evaluating the merits and risks of such a purchase and should have sufficient resources to be able to bear any losses (which may be equal to the whole purchased amount) that may result from such a purchase. Prospective purchasers of SKYCoin should be aware that the value of SKYCoin may go down as well as up and that they may not be able to realize their purchase amount on the secondary market (if there is any).

Forward looking statements

Certain statements in this whitepaper constitute “forward looking statements” that are used on the beliefs of the Directors and reflect their current expectations. When used in this whitepaper or in any of the Company’s material, the words “estimate”, “project”, “believe”, “anticipate”, “intend”, “expect”, “plan”, “predict”, “may”, “should”, “would”, “will”, the negative of these words or such other variations thereon or comparable terminology are intended to identify forward-looking statements. Such statements reflect the views of the Directors at the time the

statements are made with respect to future events based on information available at that time, and are subject to risks and uncertainties that could cause actual results to differ materially from those contemplated in those forward-looking statements. The Directors assume no obligation to update or revise these statements to reflect current information, events, or circumstances, including changes in any risks or uncertainties that may impact them.

Management Risk.

If any of the directors or officers of the Company cease to participate in the operation of the Company, the operations, objectives and activities of the Company may be adversely affected.

Liquidity of SKYCoin

As at the date of this whitepaper, there is no active secondary market for SKYCoin. Whilst the Directors hope that the success of the Company will lead to a secondary market developing, there is no guarantee or assurance that a public market will ever develop. There is often no assurance that a purchaser of the SKYCoin will be able to sell or dispose of the SKYCoin.

Changes in Applicable Law and Regulation

The Directors believe that it is possible that emergency intervention by certain Governments may take place in the future in respect of ICOs. Such intervention may be implemented on an "emergency" basis, subjecting market participants without notice to a set of regulations which in some cases may be unclear in scope and in application. Should any relevant laws or regulations change, the legal requirements to which the Company and the SKYCoin may be subject could differ materially from current requirements. No assurance can be given that future legislation, administrative rulings or court decisions will not adversely affect the Company and the SKYCoin.

The Company may be subject to a number of unusual risks, including contradictory legislation, incomplete, unclear and changing laws, ignorance or breaches of regulations on the part of other market participants, lack of established or effective avenues for legal redress, lack of standard practices and confidentiality customs characteristic of developed markets and lack of enforcement of existing regulations.

Early Stage Companies

The Company is a start-up and has no operating history against which purchasers of the SKYCoin may consider the appropriateness of purchasing the SKYCoin. Many risks and uncertainties affect start-up and early stage companies, which often have very limited operating history, profits or cash flow. There can be no assurance of the success of such enterprises. Their potential must be considered in light of the problems, expenses, difficulties, complications and delays frequently encountered in connection with new or developing businesses, including technology risks, unproven business models, untested plans, uncertain market acceptance, competition and

lack of revenues and financing.
The technological fields and markets that many startup and early stage companies address have undergone and are expected to continue to undergo rapid and significant change. Rapid technological developments may result in the technology of companies becoming obsolete, uneconomical or uncompetitive before any commercial success or financial return can be achieved. Numerous other risks may affect developing companies and ventures, including risks that products or services will be found to be ineffective, unreliable, unsafe or uncompetitive and risks that such companies' technologies, products or service will not achieve market acceptance or penetration. Market acceptance of new products, services or technologies depends on many factors and uncertainties and cannot be assured. Start-up and early stage companies may compete with entities that have established businesses, relationships and positions in the market and that have much more substantial financial, business, technological, marketing and distribution assets, operations and resources. There can be no assurance that any developing company will be able to compete successfully with more established companies. These companies may be overly dependent on the vision, skill and leadership of a single or limited number of executives. In a start-up business, the loss or disability of a key person(s) can result in significant financial hardship, in some cases the failure of the company. More than other businesses, start-ups are highly dependent on the skills and contributions of very few key employees
Any projections, forecasts, plans or other forward-looking statements are subject to numerous risks, uncertainties, changing circumstances and other factors that could cause actual results, performance, plans, prospects, operations and opportunities to differ materially from any forward-looking statements, including competition, inability to identify and do business with appropriate customers, existing and future law and regulations, liabilities under the securities laws, inability to hire, retain or qualify sufficient management and staff, general economic conditions, rapid technological change, cost overruns, delays in bringing products or services to market, marketing failures, difficulty in penetrating markets, delays or failures in developing anticipated capabilities, products or services, failure to obtain necessary regulatory approvals,insufficient funding, lack of availability of capital, rates of economic growth, levels of consumer and business spending, conditions in the technology and financial industries,dependence on strategic partners and business relationships, unproven business models, adverse developments affecting customers and end-users, fluctuations in securities markets and valuations, limited marketing, expansion risks, losses and costs, uncertain revenues and profitability, conditions in particular industries, accounting problems, costs, delays and liabilities arising from legal proceedings, failure to obtain and maintain intellectual property or proprietary rights and management failures.

Estonia
Estonia is part of the EU, having joined the European Economic Community. The

law of Estonia, According to the Constitution of Estonia (Estonian: Põhiseadus) the supreme power of the state is vested in the people. The people exercise their supreme power of the state on the elections of the Riigikogu through citizens who have the right to vote. The supreme judicial power is vested in the Supreme Court or Riigikohus, with nineteen justices. The Chief Justice is appointed by the parliament for nine years on nomination by the president. The official Head of State is the President of Estonia, who gives assent to the laws passed by Riigikogu, also having the right of sending them back and proposing new laws.

The President, however, does not use these rights very often, having a largely ceremonial role.
The Company's cash will be held by a bank. The Company acknowledges that any such deposits are not guaranteed by the bank and are exposed to losses incurred in the event of the insolvency or failure of the bank. The Company will take credit risk against any party which is holding its cash. The Company will therefore rank as a general unsecured creditor in the event of the insolvency or failure of the bank with which deposits or instruments have been placed.

Regulatory Supervision
The Company and SKYCoin are not regulated by the Estonia Financial Services Commission or any other regulatory or supervisory authority. The Estonia Financial Services Commission does not vouch for the financial soundness of the Company, the SKYCoin or for the correctness of any statements made, or opinions expressed with regards to it.

Cyber security
Cyber security threats are present within the realms of cryptocurrencies. There is a risk of loss of funds, including a total loss, should an unauthorized intrusion or theft occur. Whilst the Company has considered its cyber security, risks related to software weakness, human error, external attacks and others, continue to exist and pose a material risk to the Company and the value of the SKYCoin.
Advances in cryptography, or technical advances such as the development of quantum computers, may present risks for crypto-currencies and the SKY-NET platform, which could result in the theft or loss of SKY-NET hash rate.
Hackers or other malicious or criminal groups or organizations may attempt to interfere with the Token Sale, the SKY-NET network or the availability of SKY-NET hash rate in several ways including, but not limited to, denial of service attacks, Sybil attacks, mystification, phishing, attacks, smurfing, malware attacks, or consensus-based attacks.

Ethereum Network
SKYCoin is a part of the Ethereum network. If problems related to the Ethereum network normal functionality arise, this may affect the SKYCoin functionality and

may adversely affect the Company and the value of the SKYCoin. Therefore, any malfunction, unplanned function or unexpected operation of the Ethereum protocol may cause the SKY-NET network or SKY-NET hash rate to malfunction or operate in a way that is not expected. Ether, the native Ethereum Protocol account unit may itself lose value in a similar way to SKY-NET hash rate, and also in other ways. For more information on the Ethereum protocol, see http://www.ethereum.org

As with other decentralized cryptographic tokens and crypto-currencies, the Ethereum blockchain used for the SKY-NET network is vulnerable to mining attacks, including but not limited to, dual-expense attacks, powerful mining attacks, selfish mining attacks, and critical competition attacks. Any successful attack poses a risk to the SKYNET software and the expected performance and sequencing of Ethereum contract calculations. Despite the best efforts of the SKY-NET team, the risk of known or new mining attacks exists.

Crypto-currencies and cryptographic tokens are a cutting-edge, untested technology. In addition to the risks stipulated above, there are other risks that the SKY-NET team cannot predict. Risks may also occur as unanticipated combinations or as changes in the risks stipulated herein.

JAN 2019