Contents

Executive summary

Executive summary

This document gives a detailed overview of the SOOM 4th Blockchain platform. 4th blockchain is technology which can increase security and processing speed by adding space and time concept to existing blockchain. The purpose of the document is to extensively describe 4th Blockchain's technical innovations as well as SOOM TECH's vision, structure and short to long-term business strategy.

4th Blockchain is a Blockchain-as-a-Service platform designed for both conventional and smart-phone usage. 4th Blockchain is developed by SOOM TECH, established in Singapore and governed by the SOOM Foundation, established in Switzerland.

SOOM TECH's innovative consensus algorithm, named Proof-of-Group-Stake, not only makes mobile mining possible but also opens the way to a multitude of performant, secure and practical Blockchain based smartphone applications.

SOOMPAY, international in-store mobile payment provider, will be the first enterprise to take advantage of 4th Blockchain platform by releasing an all-inclusive crypto mobile payment solution in mid-2019.
Although in the early development stage, the versatility and security of 4th Blockchain platform already attracted a variety of other projects from multiple countries and industries including financial services, real estates, telecommunication, logistics and education. Indeed, the platform's technical innovations make it possible for SME's as well as larger corporations and institutions from any industries to develop their own projects while benefiting from state-so-the-art 4th Blockchain's features, maximum scalability and foolproof security without the cost and burden of creating a Blockchain from scratch.

Introduction

02

02

Introduction

2.1 Brief history of Blockchain

Blockchain 1.0 - Bitcoin

The original blockchain is the decentralized ledger behind the digital currency Bitcoin. Bitcoin's whitepaper, published in 2008, outlines the details required for a protocol that establishes a decentralized currency and securely operates it on a trustless network.

The bitcoin software was released to the public in January 2009. It was and still is, an open source software, meaning anyone can examine the code and reuse it. In the following years many bitcoins clones appeared with minor code changes aiming at improving transactions' features such as speed, privacy, ownership etc (Litecoin, Zcash, Monero..). However, problems in the Bitcoin implementation like wasteful mining hardware, centralized mining community, and lack of network scalability emerged as the network grew larger which triggered a new wave of technical innovation.

Blockchain 2.0 - Ethereum

In 2013, a start-up called Ethereum proposed to extend the concept of Bitcoin beyond just currency. Ethereum's founder proposed a platform where developers and entrepreneurs can build distributed applications for the Blockchain network without having to start from scratch or relying on the Bitcoin software.

Ethereum made possible easy tokenization of assets and succeeded in gathering a strong developer community, enterprise support and establishing a true ecosystem in an extremely short time.

However, along with booming popularity, scalability issues remain. Ethereum's blockchain and similar technologies face extremely low energy efficiency, medium to low block validation and high network fee preventing worldwide mass adoption.

Blockchain 3.0 - The contenders

The 3rd generation of Blockchain can refer to newer industry players trying to solve all the problems seen in first and second generation while adding new concept to the existing cryptospace.

Solving scalability, speed and energy consumption issues are the main goals of companies like EOS, IOTA, Qtum or Cardano, each of them introducing new approaches, technical structures, consensus algorithm etc..

As several technologies, yet immature, seem promising, only a few are being developed to be specifically incorporated to the real world. Over the thousands of Blockchain projects launched during the past two years, practical applications for daily-life improvement remain very scarce.

Most of current technologies lack interactions with real world data which limits practical implementation into most of industries and keeps outcomes beneficial to a limited number of people.

2.2 SOOM TECH & 4th Blockchain

SOOM TECH

SOOM TECH has committed to making block-chain ecosystem accessible to the greatest number of individuals, SME's as well as larger corporations and institutions from any industries by leveraging the ubiquity of the smart phone network and placing flexibility, richness and efficiency at the heart of its technology.

4th Blockchain

4th Blockchain is a blockchain-as-a-Service platform designed to meet the needs of organizations willing to fully take advantages of Blockchain's tremendous potential without the cost and burden of developing, maintaining and updating the backend of a complex network of nodes.

4th Blockchain's innovative features such as Grouping algorithm, Proof-of-Transaction and mobile wallet mining allow the platform to support a tremendous variety of conventional and smart-phone based projects from a wide range of industries such as payment systems, customer services, real estates, banking services or telecommunication.

Technology Introduction

03

03 Technology Introduction

3.1 4th Blockchain characteristics

3.1.1 Background

Blockchain network is generally composed of thousands of computers using same protocol. Hence, selecting proven technology with stability and security is more effective than building from scratch. Both Bitcoin and Ethereum are well-known for sound and secure cryptocurrency network, but there are still compatibility and blending concerns with today's companies.

Reasons

The slow confirmation process where Bitcoin and Ethereum needs about 10 and 2 minutes respectively. This could also be delayed further due to DDOS cyber-attack and hackings. Hardfork is the only solution to such problems but its development speed is very slow and its specialized technology is not yet proven in the market. In addition, companies are not given the authority to control transaction speed, transaction size, and other network configuration. This is a very concerning issue for enterprises in adapting the current Blockchain technology because they are unable to prepare risk management plan on uncertainty of system failure and errors.

However, 4th Blockchain technology offers customized business network environment able to meet each enterprise's unique needs while enhancing security and reliability.

3.1.2 General information

Today's blockchain technology faces challenges in offering quality services to general consumers due to limited settings and potential regulation constraints.
Designed to offer reliable services to general consumers, 4th Blockchain offers various solutions to tackle these issues.
4th Blockchain technology has been designed to be applied far beyond crypto asset trading and fulfill a large variety of industrial needs.

On 4th Blockchain network, one peer-to-peer transaction requires 512 nodes to form a cell. These 512 nodes are selected based on time and location.
In other words, 4th Blockchain adds space-time concept to existing blockchain technology to increase security quality with segmented code according to transaction content.

4th Blockchain ecosystem has following advantages comparing to current:

1 | Mobile phone mining

2 | High speed and minimum fee transaction

3 | Smart data collection.

3.1.3 Technology characteristics

4th Blockchain

By combining blockchain and time/space concept, 4th Blockchain bene-fits from increased processing speed and foolproof security. Existing blockchains utilize data + time concept. 4th Blockchain utilizes data + time + space. Space concept of nodes can be now used in 4th Blockchain. Furthermore, SOOM TECH would like to introduce Group concept in Blockchain. Each node becomes a member of a Group, and each full node that manages a Group becomes a Gateway. Detail explanation of Group-ing concept is given in the consensus algorithm section.

Space-time Algorithm

The time and space algorithms use values of time and space for time stamp and live positioning. Time-space values are set by algorithms for random, one-node location values from N names to 512, and location values between locations. Nodes pass their space values to the server responsible for it, and the Grouping algorithm determines which groups the nodes will belong to. The nodes are continuously being managed and maintained by the Grouping algorithm.

512 Node maintenance

Securing time is a common feature for storing data in a blockchain. It can be essential for certain contracts that require processing at the time of creation. However, freeing up time can cause delays in processing speed as more users join the network, which is one of the main issues in traditional blockchain. Ensuring that nodes in distrib-uted systems have a uniform, accurate time between nodes is diffi-cult to ensure in traditional blockchains.
By selecting a new set of 512 nodes to verify each transaction, 4th Blockchain aims at reaching maximum transaction efficiency with-out altering security. 4th Blockchain network allows new Block crea-tion every eight seconds.

3.2 Consensus algorithm introduction

With purpose to make mobile mining possible, SOOM TECH designed two innovative consensus algorithm named Proof-of-Group-Stake(POGS) and Proof-of-Transaction (POT) consensus algorithms. Based on these algorithms, 4th Blockchain core will be operating on P2P basis with widely increased speed. In addition, these consensus algorithms also speed up transaction.

Light Node (LN)
Wallet that does not maintain Block Sync. Applies to Mobile Wallet.

Full Node
Wallet that maintains Block Sync. Applies to Window Wallet or Linux Wallet.

Gateway (GW)
Only Full Node can become a GW, grouping management, generation of POGS/POT Block.

3.2.1 POGS (Proof-of-Group Stake)

POGS consensus algorithm is developed by SOOM TECH, it uses Grouping technology, where each node is part a Group. Grouping is done randomly up to 512 members from N people, group is decided from group members through a server called Location Daemon. Gateway that manages each group can be only a Full Node. In order not to breach the ecosystem environment full nodes have to deposit certain amount of SOOM Coin in order to behave as a Gateway. This provides an indication of the eligibility of the Gateway and a certain amount of the deposit will be returned to wallet if node is not selected to operate as a Gateway.
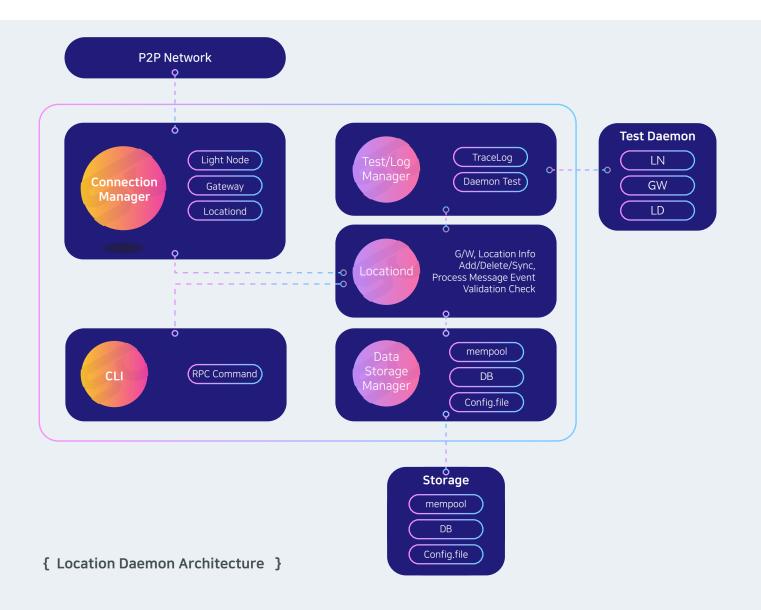
Once grouping is complete, Gateway collects Coin Age from each member in its group. Each group member (node) delivers its pre-calculated Coin Age to the gateway. This Coin Age then serves as basis for contribution percentage that each node will receive in return if Gateway gets reward for issuing POGS block. The older Coin Age is, the more coins each node gets, however once Coin Age is reset, Coin Age will be recalculated as time goes on.

POGS Block is created by Gateway managing the Group. To avoid POGS Block fork, the order in which POGS Block is issued will be determined between gateways in advance. Voting algorithm allows the Gateway to issue Blocks only in the particular order that was set. This is an important feature to prevent Fork creation.
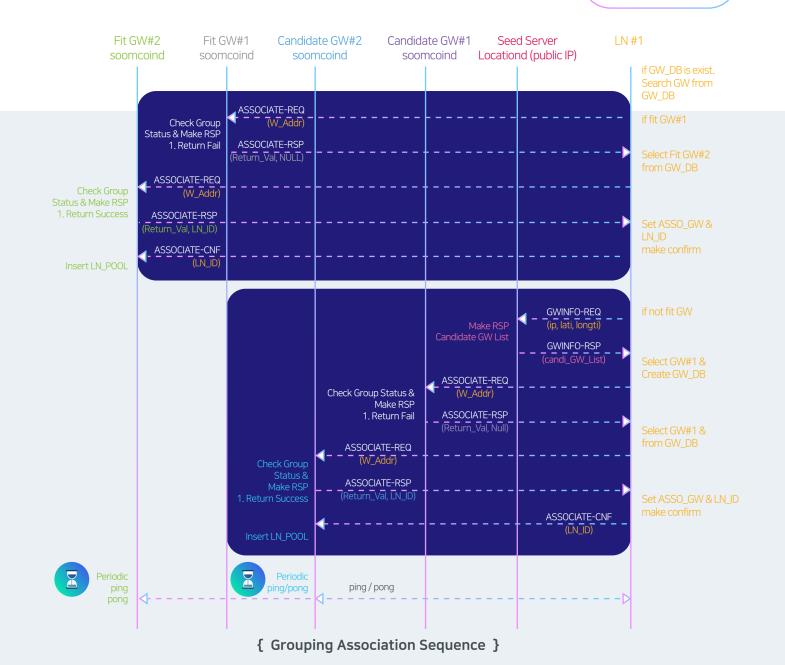
POGS Block validation can be done with UTXO(Unspent Transaction Output), each node's Coin Age will be verified by checking each wallet's UTXO.

Grouping Algorithm

The Grouping algorithm in POGS works with protocols developed by SOOM TECH. Grouping is specified by a server named Location Daemon (LD). Location Daemon communicates grouping information to nodes upon requests. Nodes that have received Grouping related information, request an Association to the Gateway of the Group where they belong and when the Gateway accepts it, the Node becomes a Member of the Group.

{ Location Daemon Architecture }

LN : Light Node
GW : Gateway
Locationd : Location Daemon

Fit GW#2 soomcoind **Fit GW#1** soomcoind **Candidate GW#2** soomcoind **Candidate GW#1** soomcoind **Seed Server** Locationd (public IP) **LN #1**

if GW_DB is exist.
Search GW from GW_DB

ASSOCIATE-REQ (W_Addr)

Check Group Status & Make RSP 1. Return Fail

if fit GW#1

ASSOCIATE-RSP (Return_Val, NULL)

Select Fit GW#2 from GW_DB

ASSOCIATE-REQ (W_Addr)

Check Group Status & Make RSP 1. Return Success

ASSOCIATE-RSP (Return_Val, LN_ID)

Set ASSO_GW & LN_ID make confirm

ASSOCIATE-CNF (LN_ID)

Insert LN_POOL

GWINFO-REQ (ip, lati, longti)

if not fit GW

Make RSP Candidate GW List

GWINFO-RSP (candi_GW_List)

Select GW#1 & Create GW_DB

ASSOCIATE-REQ (W_Addr)

Check Group Status & Make RSP 1. Return Fail

ASSOCIATE-RSP (Return_Val, Null)

Select GW#1 & from GW_DB

ASSOCIATE-REQ (W_Addr)

Check Group Status & Make RSP 1. Return Success

ASSOCIATE-RSP (Return_Val, LN_ID)

Set ASSO_GW & LN_ID make confirm

ASSOCIATE-CNF (LN_ID)

Insert LN_POOL

Periodic ping pong

Periodic ping/pong

ping / pong

{ Grouping Association Sequence }

POGS Payment and Vote

POGS payment and vote protocol message is used to agree on the rights to create POGS block between Gateways.

1 | Each gateway calculates the order in which the next blocks will be created based on the synchronized GW List information.

2 | All new gateways wait for the 1 Full Cycle (n Block Equal to number of GW) and then wait for the first payment.

3 | Payment time and information on the Gateway are synchronized through the sync process and the top 10 oldest from lastpaid-vector are selected.
Based on payment criteria, scores are calculated using the following formula from among the 10 % lastpaid node

GetHash
(GWCollateralBlock.vin.prevout + GWCollateralBlockHash + prevPOGSblockHash + GWCoinAge)
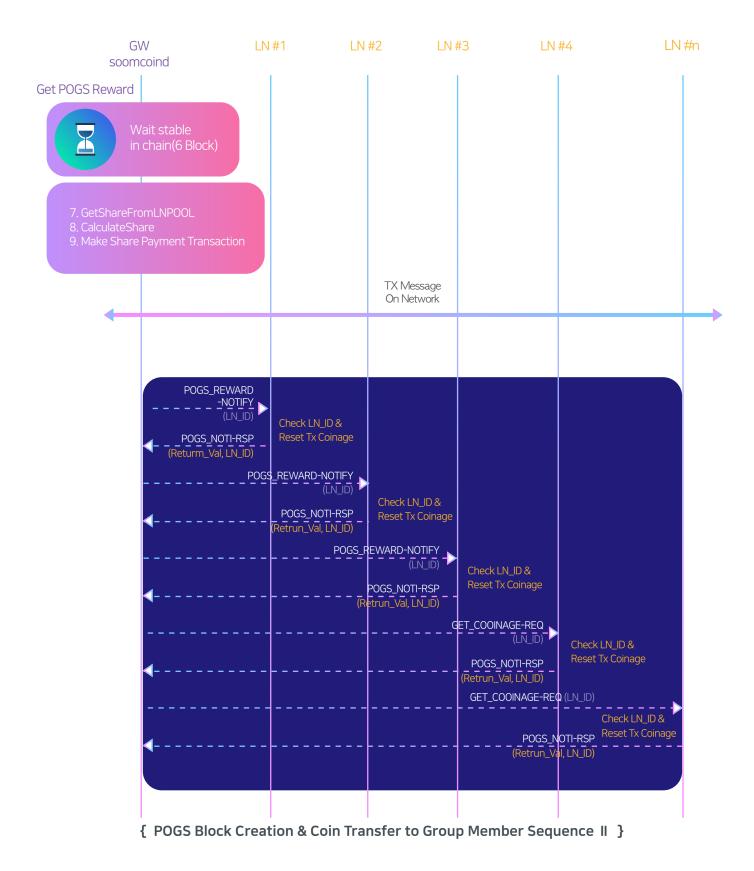
4 | Selection of the node that has the highest value based on its estimate as the candidate node for block generation.
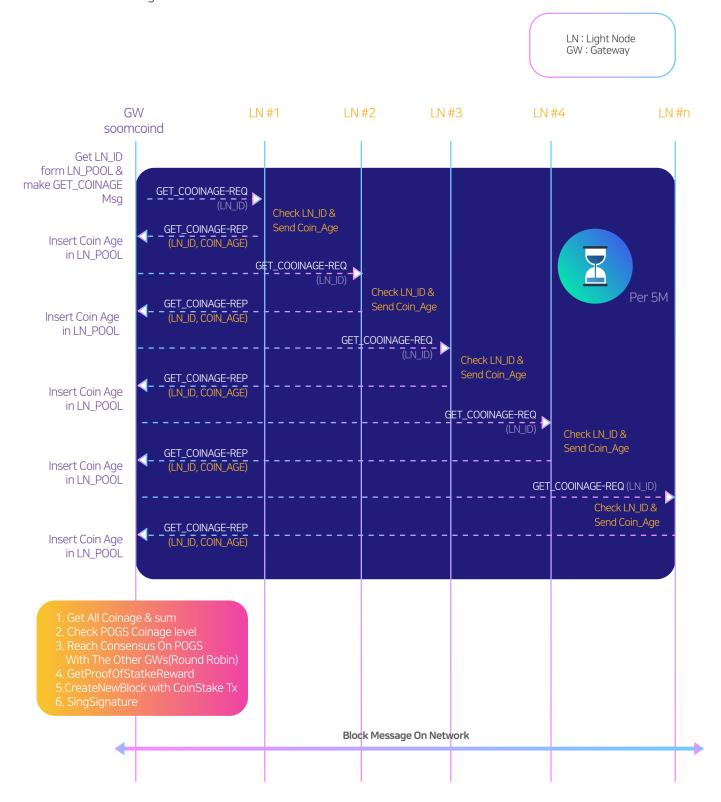
5 | The top 10 nodes in the score aggregation will be selected as nodes that can perform a voting. The winner will be the node that collected six or more votes.

POGS Block creation

POGS Block is issued by the Gateway. The Gateway only operates as a full node and always maintains the latest block. Gateway periodically collects Coin Age from group members and stores it in Mempool, then gateway issues a POGS Block when its turn comes and distributes reward coins to its members. After deducting its fee, gateway will distribute the Coin received as Reward to group members according to the amount of Coin Age that has been collected.

LN : Light Node
GW : Gateway

GW
soomcoind

LN #1   LN #2   LN #3   LN #4   LN #n

Get LN_ID
form LN_POOL &
make GET_COINAGE
Msg

GET_COOINAGE-REQ
(LN_ID)

Check LN_ID &
Send Coin_Age

GET_COINAGE-REP
(LN_ID, COIN_AGE)

Insert Coin Age
in LN_POOL

GET_COOINAGE-REQ
(LN_ID)

Check LN_ID &
Send Coin_Age

GET_COINAGE-REP
(LN_ID, COIN_AGE)

Insert Coin Age
in LN_POOL

GET_COOINAGE-REQ
(LN_ID)

Check LN_ID &
Send Coin_Age

GET_COINAGE-REP
(LN_ID, COIN_AGE)

Insert Coin Age
in LN_POOL

GET_COOINAGE-REQ
(LN_ID)

Check LN_ID &
Send Coin_Age

GET_COINAGE-REP
(LN_ID, COIN_AGE)

Insert Coin Age
in LN_POOL

Per 5M

GET_COOINAGE-REQ (LN_ID)

Check LN_ID &
Send Coin_Age

GET_COINAGE-REP
(LN_ID, COIN_AGE)

Insert Coin Age
in LN_POOL

1. Get All Coinage & sum
2. Check POGS Coinage level
3. Reach Consensus On POGS
   With The Other GWs(Round Robin)
4. GetProofOfStatkeReward
5. CreateNewBlock with CoinStake Tx
6. SingSignature

Block Message On Network

{ POGS Block Creation & Coin Transfer to Group Member Sequence Ⅰ }

GW
soomcoind

LN #1   LN #2   LN #3   LN #4   LN #n

Get POGS Reward

Wait stable
in chain(6 Block)

7. GetShareFromLNPOOL
8. CalculateShare
9. Make Share Payment Transaction

TX Message
On Network

POGS_REWARD
-NOTIFY
(LN_ID)

Check LN_ID &
Reset Tx Coinage

POGS_NOTI-RSP
(Returm_Val, LN_ID)

POGS_REWARD-NOTIFY
(LN_ID)

Check LN_ID &
Reset Tx Coinage

POGS_NOTI-RSP
(Retrun_Val, LN_ID)

POGS_REWARD-NOTIFY
(LN_ID)

Check LN_ID &
Reset Tx Coinage

POGS_NOTI-RSP
(Retrun_Val, LN_ID)

GET_COOINAGE-REQ
(LN_ID)

Check LN_ID &
Reset Tx Coinage

POGS_NOTI-RSP
(Retrun_Val, LN_ID)

GET_COOINAGE-REQ (LN_ID)

Check LN_ID &
Reset Tx Coinage

POGS_NOTI-RSP
(Retrun_Val, LN_ID)

{ POGS Block Creation & Coin Transfer to Group Member Sequence Ⅱ }

3.2.2 POT (Proof-of-Transaction)

Proof-Of-Transaction is a consensus algorithm to encourage transactions. The idea is to provide to nodes that performed a lot of transactions within a short time the opportunity to create a block.

Unlike POGS, which encourages to hold coins, POT will encourage to perform transaction and spend coins. The objective is to give every node in the network a fair chance to benefit from block mining reward.

The POT Block is issued by the Gateway whose node is a Group Member. Again, because there must be a full node capable of issuing the POT Block, the issuing Gateway is always a full node that maintains block sync.

Node informs Gateway when its Transaction Point becomes Target Level, then Gateway verifies transaction with the Bank's Wallet Address and checks Target Level to issue block. When the Gateway issues a POT Block and receives a Reward, it takes off its fee and sends the rest to the node.

The POT Block creation order will be also kept via POGS Payment & Vote protocol. Validation of the POT Block is done with the transaction address of the corresponding wallet. The transaction history of the wallet will be verified to ensure that every past transaction was true. The coins received via POT Block creation can be seen as incentive points concept received when using credit card.
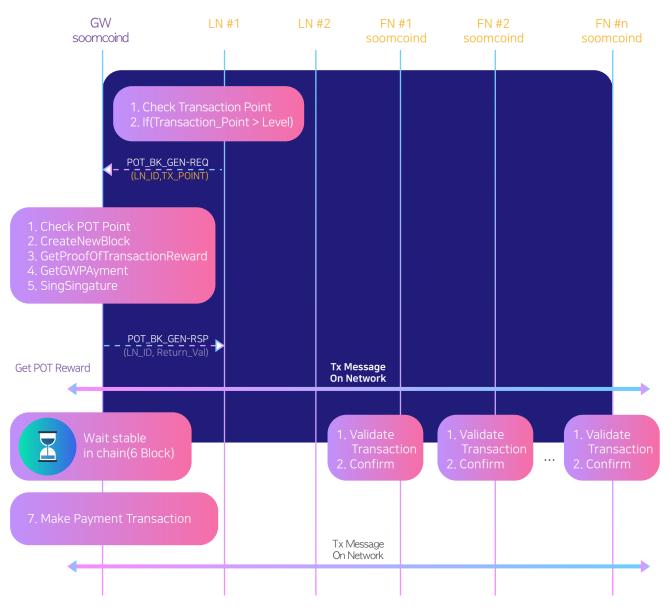
POT Block Creation

The POT Block is issued by the Gateway where the node belongs in a first-in-first-out approach. If no POT Block is requested, the Gateway next by order of gateways will have the opportunity to create the POT Block.

Once the Gateway is set to issue the POT Block, it checks the transaction score of the node and issues a POT Block including the transaction through its internal process. When rewarding coins to the node in compensation for issuing POT Block, Gateway takes off its fee and returns the rest of the reward to the corresponding nodes.

The order of POT Block issuance between gateways is set by the same Voting algorithm as the order in which POGS Block is issued and is also the best way to prevent block fork.

POT Block is a consensus algorithm introduced to encourage transactions that will function as a virtual currency and serve as a base for improving the transactions quality.

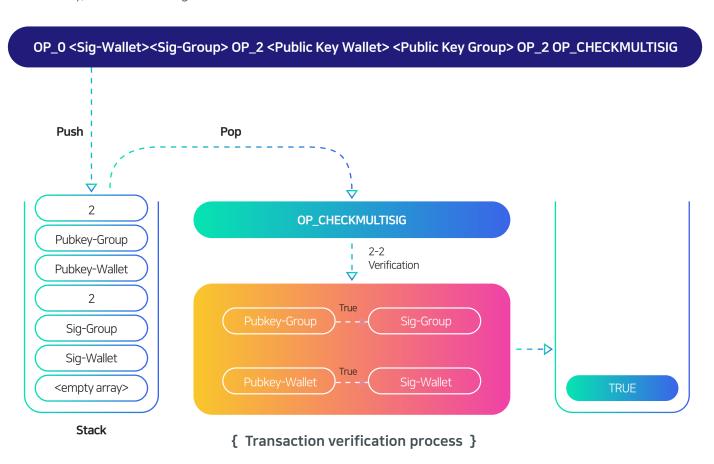{ POT Block Creation & Coin Transfer Sequence }

3.3 Dual security Improvement

Security is a critical part of blockchain ecosystems. Most of the time, hash functions prevent hacking on the blocks but there are still many instances where exchange platform had been hacked.

SOOM TECH designed dual security to prevent hacking specifically during the transaction process. In addition to the private key of the wallet used for transaction, SOOM TECH developed a new Group Private Key, made during grouping. The Group Private Key consist of the group members' wallet Public Keys and Current Time of Grouping, and is updated every 8 seconds.

Therefore, two private keys for the wallet and one private key for the group are used to perform each transaction. The security is dual because the transaction is validated by two private keys – Wallet Private Key and Group Private Key.

Additionally, 2-of-2 Multi-signature will be used to validate the transaction.

OP_0 <Sig-Wallet><Sig-Group> OP_2 <Public Key Wallet> <Public Key Group> OP_2 OP_CHECKMULTISIG

Push   Pop

Stack:
- 2
- Pubkey-Group
- Pubkey-Wallet
- 2
- Sig-Group
- Sig-Wallet
- <empty array>

Stack

OP_CHECKMULTISIG

2-2 Verification

- Pubkey-Group — True — Sig-Group
- Pubkey-Wallet — True — Sig-Wallet

TRUE

{ Transaction verification process }

3.4 Multi Block

Mobile Block

Block generated on mobile wallet.

Table Block

Block formed by 10 Mobile Blocks gathered together.

Space Block

Block consisting of 8 Table Blocks and thus 80 Mobile Blocks.
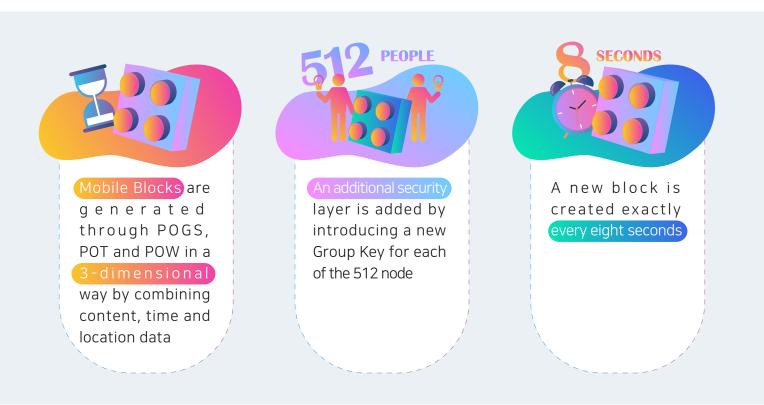
3.4.1 Multi Block Structure

With classification structure similar to mobile communication channel architecture our 4th Blockchain is able to increase transaction processing speed. It was designed not only to transfer data but also to detect rapid changes and allows block function to distinguish and expand data.

Multiblock is technology developed by ourselves for safe management of cryptocurrency. SOOM TECH combined mobile communication channel structure into 4th Blockchain, blocks are structured by content to enable faster search and fast transaction processing. In mobile communication channels are divided into 4 types of forward channels and 2 types of reverse channels according to each function, and there is corresponding function for each channel. For instance, synchronization channel between base station and terminal is channel used to obtain timing information from base station to terminal; traffic channel carries actual voice or data traffic. In the same way as each channel is operated according to different function, in 4th Blockchain contents are grouped and processed by function. Mobile blocks are gathered into table blocks and are sorted in space blocks by contents. 4th Blockchain multiblock structure was designed based on structure that processes data by channel classification in mobile communication.

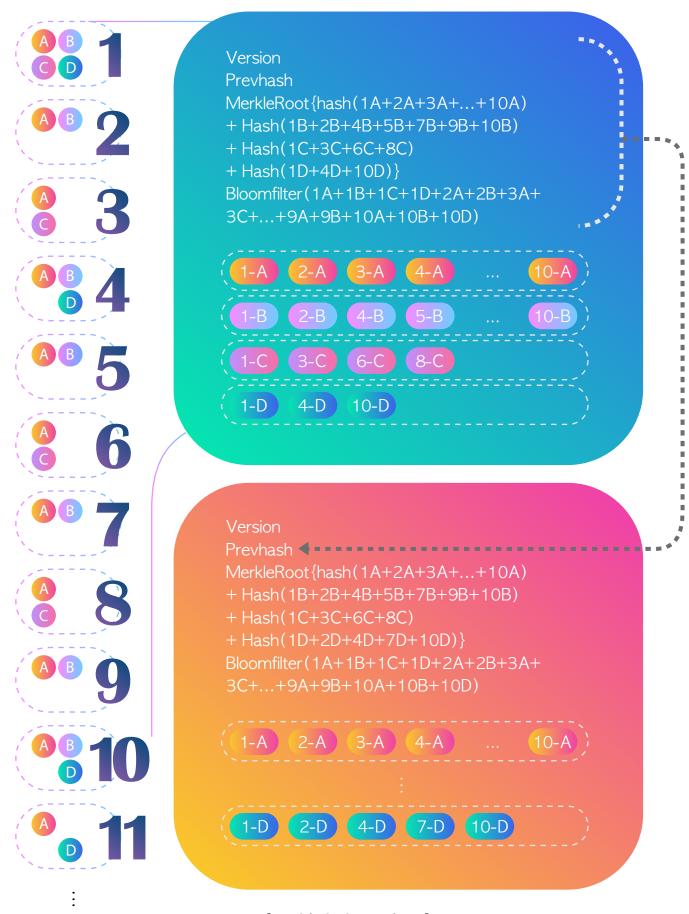### 3.4.2 Multi Block Types and creation process

Mobile Block (MBC): Data are collected from real-time location and time of particular wallet address on mobile communication environment and then stored in 4th Blockchain. Time is saved from 512 node users maintaining nodes for all data. MBC is able to classify and divide all transactions in digital wallet by location value and contents category; therefore, loading and searching necessary information from ledger is a lot faster.
Mobile Blockchain is created through POGS, POT, POW algorithms and accessible by anyone.

512 PEOPLE

8 SECONDS

Mobile Blocks are generated through POGS, POT and POW in a 3-dimensional way by combining content, time and location data

An additional security layer is added by introducing a new Group Key for each of the 512 node

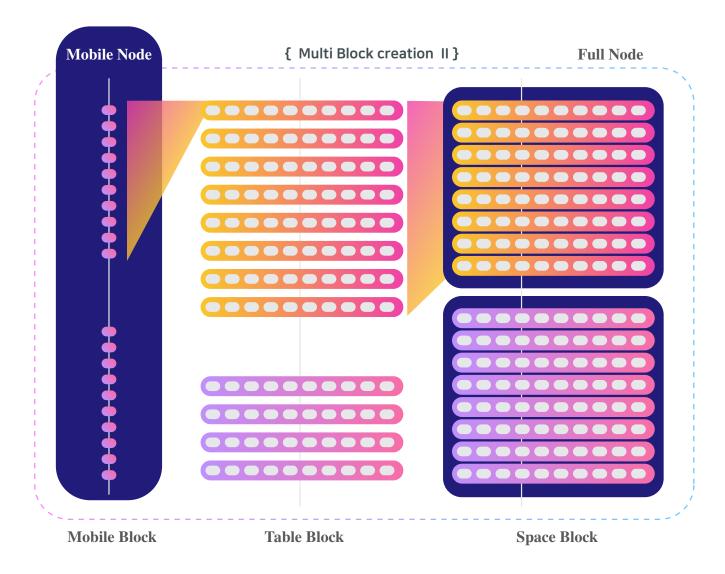A new block is created exactly every eight seconds

Once 10 Mobile Blocks are mined, 1 Table Block is created, once 8 Table Blocks are created 1 Space Block will be generated. Into each Table Blocks, the ten Mobile Blocks are sorted by data content and volume through MerkleRootHash function, which allows to increase search speed by bloomfilter. Hash of Table Block Header is connected into chain by Prevhash of the next Table Block.
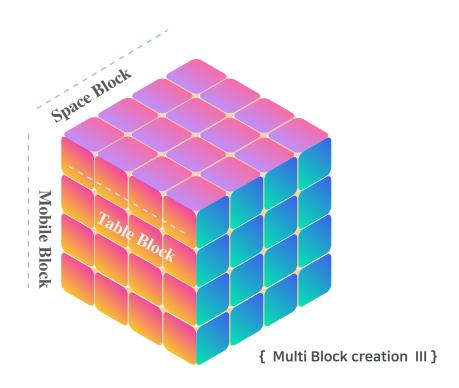
In current blockchains, when searching for a transaction it is necessary to find a block by scanning through appropriate block index until the required transaction in obtained block is found. This is very often a time consuming laborious process.
The logic of Multi Block sketched below is intended to improve search method from 1-dimensional to 2- or 3-dimensional search method. During block creation process, transactions will be classified by type and location. Results of pre-search will be kept in block increasing search and load of information.

Mobile Block

Table Block

1

A B
C D

2

A B

3

A
C

4

A B
   D

5

A B

6

A
C

7

A B

8

A
C

9

A B

10

A B
   D

11

A
   D

Version
Prevhash
MerkleRoot{hash(1A+2A+3A+...+10A)
+ Hash(1B+2B+4B+5B+7B+9B+10B)
+ Hash(1C+3C+6C+8C)
+ Hash(1D+4D+10D)}
Bloomfilter(1A+1B+1C+1D+2A+2B+3A+
3C+...+9A+9B+10A+10B+10D)

| 1-A | 2-A | 3-A | 4-A | ... | 10-A |

| 1-B | 2-B | 4-B | 5-B | ... | 10-B |

| 1-C | 3-C | 6-C | 8-C |

| 1-D | 4-D | 10-D |

Version
Prevhash
MerkleRoot{hash(1A+2A+3A+...+10A)
+ Hash(1B+2B+4B+5B+7B+9B+10B)
+ Hash(1C+3C+6C+8C)
+ Hash(1D+2D+4D+7D+10D)}
Bloomfilter(1A+1B+1C+1D+2A+2B+3A+
3C+...+9A+9B+10A+10B+10D)

| 1-A | 2-A | 3-A | 4-A | ... | 10-A |

| 1-D | 2-D | 4-D | 7-D | 10-D |

{ Multi Block creation I }

Mobile Node

{ Multi Block creation II }

Full Node

Mobile Block　　　　**Table Block**　　　　**Space Block**

It is faster and easier to find information within block if information is sorted in advance which is performed by bloomfilter, using simple block index.

Space Block

Mobile Block

Table Block

{ Multi Block creation III }

4th Blockchain governance
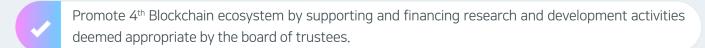
04

03

4th Blockchain governance

4.1 SOOM Foundation Introduction

The design of SOOM Ecosystem's governance structure mainly considers sustainability, management effectiveness and multi-asset fund raising security in the open source community.
SOOM Foundation is committed to developing a robust governance structure and managerial assistance to general affairs regarding the overall operation and harmony of 4th Blockchain ecosystem.

Presidency	Mr. Ki-Eob Park, Founder and President of the Board

Location	Established in Switzerland, Zug canton.

Status	Non-profit organization, supervised by Swiss Federal Supervisory Authority. The Foundation is exclusively and directly serving charitable purposes. It does not pursue any profit and is not geared toward profit.

Purpose	Overlook the development of 4th Blockchain ecosystem and support the evolution of the ecosystem.

Governance	The Foundation board decides by simple majority vote. Board of trustees elected for one-year term. Re-election is possible for an indefinite period unless there is a reason for resignation.

Supervision	Audited once a year by a Swiss external auditor. The auditor shall review the accounting of the Foundation and provide the board and the supervisory authority with the report on the result of the review.

Functions

✓ Promote 4th Blockchain ecosystem by supporting and financing research and development activities deemed appropriate by the board of trustees.
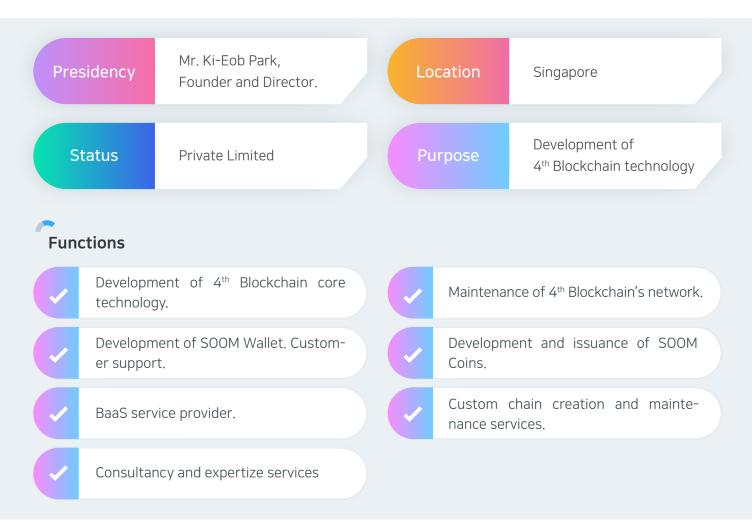
✓ Engage with various corporations, partners as well as banks, regulators and other third parties to the benefit of 4th Blockchain ecosystem.
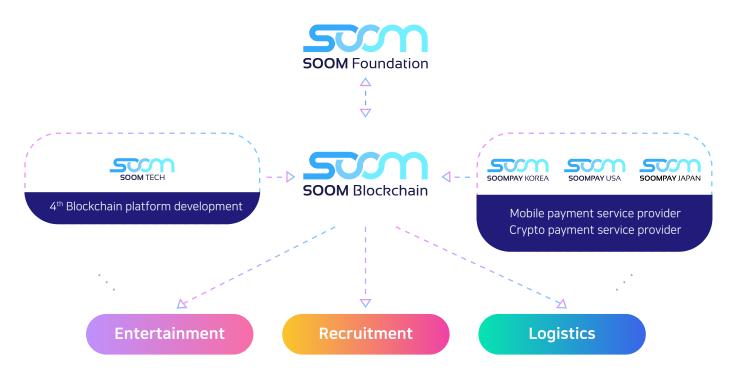
✓ Educate the public about 4th Blockchain ecosystem. Organize conferences, conventions and other events that promote the ecosystem.

SOOM Foundation also seeks to cooperate with other legal groups with similar objectives and start joint projects in line with the purpose of the Foundation.

4.2 SOOM TECH Introduction

SOOM TECH is the corporate entity responsible for the development of 4th Blockchain core technology, maintenance of its network and expansion of the platform under the governance of SOOM Foundation.

Presidency	Mr. Ki-Eob Park, Founder and Director.
Location	Singapore
Status	Private Limited
Purpose	Development of 4th Blockchain technology

Functions

- ✓ Development of 4th Blockchain core technology.
- ✓ Maintenance of 4th Blockchain's network.
- ✓ Development of SOOM Wallet. Customer support.
- ✓ Development and issuance of SOOM Coins.
- ✓ BaaS service provider.
- ✓ Custom chain creation and maintenance services.
- ✓ Consultancy and expertize services

SOOM Foundation

SOOM TECH
4th Blockchain platform development

SOOM Blockchain

SOOMPAY KOREA **SOOMPAY USA** **SOOMPAY JAPAN**
Mobile payment service provider
Crypto payment service provider

Entertainment   **Recruitment**   **Logistics**

4th Blockchain ecosystem

05

05

4th Blockchain ecosystem

5.1 Business introduction

5.1.1 Blockchain-as-a-Service (BaaS)

SOOM TECH will provide turnkey solutions for enterprises of all sizes and industries willing to incorporate Blockchain technology to their portfolio of services.

The revenue stream will help SOOM TECH to remain an autonomous entity and will provide the necessary resources to continuously expand the platform.

Custom chain creation and maintenance services explained

Many organizations need a custom blockchain with its own transactional token and customized functionality for their needs. However, while few organizations are willing to support the burden of developing their own blockchain and maintain a secure network, even fewer possess the technical resources to do so. The unique structure of 4th Blockchain platform will allow design, creation and maintenance of secondary customized blockchains, supported by the main chain. SOOM TECH's blockchain creation service will allow any corporation, organization or institution to implement their own secondary chain with their own native token on 4th Blockchain platform. Secondary chains will be highly customizable and offer a large variety of features based on each clients' needs. Implemented on 4th Blockchain, secondary chains will benefit from the security and performance of its robust network.

Heavy customization, maintenance and support of the secondary chains will be part of SOOM TECH's paid services, which will always make sure that its client's needs are fully met.

Fair revenue sharing with businesses which generate revenue from their secondary chain will be another possible income source.

SOOM TECH will also offer consulting services such as modification of the existing features or building extra custom functionalities to fit the needs of each client. With this service, the changes will be applied by SOOM TECH's engineer themselves in collaboration with the client in order to achieve maximum efficiency and security. Other consulting services will also be available, such as the exploration of potential business use case application of our technology at a high technical level.

Expertize services will not only be available for businesses but also for large range of organizations and public authorities on the potential benefits of integrating the Blockchain technology in their operations.

5.1.2 SOOM Wallet

In the first phase of its development, SOOM Wallet serves as an easy-to-use and secure SOOM Coin storage device on mobile and desktop.

Once 4th Blockchain platform is live, SOOM Wallet will become an all-in-one wallet for everyday customers' needs. SOOM Wallet will be a convenient way for end customers to pay for daily expenses in the cryptocurrency they like and trust.

Because SOOM Wallet intends to be the interface not only to 4th Blockchain platform but also to the crypto community in general we are developing the following features with convenience in mind.

Multi-currency

SOOM Wallet users will have the choice between a wide variety of blockchain assets as source of payment without going through the hassle of converting into fiat money before paying. Secondary chains' token, developed on 4th Blockchain platform, will also be available into SOOM Wallet, offering to dynamic start-ups projects a global network of potential users.

Dual Security System

Developed on 4th Blockchain, SOOM Wallet will benefit from its innovative dual private/group key security system, adding one layer to conventional security set-ups.

Location based services

The Crypto industry really lacks the relevant and regularly updated resources where you can find places that accept crypto. Existing services like Coinmap and UseBitcoins.info are mostly outdated which can often lead to wasting customer's time.
SOOM TECH will offer merchants a feature to add and edit their locations on SOOM Wallet's map and activate/change/deactivate the status of crypto payments for each of their locations.

Loyalty programs

To build customer trust and loyalty, SOOM TECH will introduce custom deals and promotions system that any of SOOM Wallet' users can access through their wallet. Each customer will be offered the most relevant discounts offers and be invited to promotional events of the top stores of interest.

Crypto exchange

In the future, SOOM TECH also plans to incorporate a one-stop coin exchange feature directly into SOOM Wallet. SOOM TECH's target is to make the exchange functionality instantaneous, secure and totally free.

Utility bill payment

Utility bill payments are inevitable, recurrent and of relatively small amounts, which make them perfect candidates to be implemented on blockchain.

In the future SOOM TECH is planning on adding up an integrated utility bill payment option to SOOM Wallet. Unstable legislation in most countries remains an obstacle that only mass blockchain adoption will be able to breach in the 2 to 5 years to come.

Merchant edition

SOOM TECH is developing and upgraded version of SOOM Wallet to best fit merchant's needs.
SOOM Wallet Merchants Edition will include the following features:

Invoice generation

As soon as a merchant receives confirmation of the crypto transaction, an invoice is automatically sent to the customer's wallet.

Big data analysis

Big data analysis of customers' behavior, special promotion, discount events or simple invitation to visit the store

Geo-targeted push notifications via SOOM DUO

location based marketing device. Merchants accepting crypto can set automatic push notifications to be sent to SOOM Wallet users passing within close distance of the point of sale.

Hierarchy management.

Different level of access to the wallet's information can be granted according to the seller's position (waiter, manager, director for example).

Crypto wallet comparison

	Coinbase	Jaxx	Coinomi	My ether Wallet	Ten X	SOOM Wallet
Multi-currency	O	O	O	O	O	O
Dual security system	O	X	X	O	X	O
Location based services	X	X	X	X	X	O
Loyalty program	X	X	X	X	X	O
Crypto exchange	X	O	O	X	O	O
Utility bill payment	X	X	X	X	O	O
Merchant edition	O	X	X	O	X	O

5.1.3 Other business cases

4th Blockchain platform's unique features make it applicable in a wide variety of industries. Immutable and distributed ledger are features that many companies required but could not reached without losing in user experience quality, until now.

SOOM Foundation is currently in discussion with leaders in the following industries:

SOOMPAY

Mobile payment system aiming at bringing cohesion among the multitude of mobile pay services and cryptocurrencies.
SOOMPAY will be the first enterprise to take advantage of 4th Blockchain platform.

SOOM RECRUIT

SOOM TECH is planning to provide environment where every company headhunting for talented members can be sure about candidate's career and experience.

SOOM ENTERTAINMENT

SOOM TECH is planning to create environment where movie producers will be able to raise funds base on Blockchain tokens. In this way we can create fair and rational profit distribution structure for every VALUE CHAIN in move market (production – investment – distribution – box offices)

SOOM LOGISTICS

There are a lot of intermediaries in logistics, requiring a lot of document and contracts. SOOM TECH wants to create an environment where all contracts could be made in transparent manger and all records could be tracked down, proven and trusted easily.

5.2 SOOMPAY

5.2.1 Company Introduction

SOOMPAY is a S.Korea based mobile payment company providing merchants across Asia comprehensive solutions to support the major Chinese mobile payment services; Alipay, Wechatpay and Unionpay Quickpass. Merchants using SOOM Pay see transactions being automatically settled in their local currency while Chinese travelers enjoy seamless payment via their favorite mobile app.

5.2.2 Growth potential

Facts *

	2017	2022
Chinese outbound travelers	130 million	190 million
Chinese outbound travelers' spending (USD)	260 billion	430 billion

Expectation *

In 2017, 94% of Chinese outbound travelers wished to use their mobile payment app when they travelled.

Reality *

In 2017, mobile payment transactions during travels accounted for only 28% of total transaction among Chinese outbound travelers due to lack of mobile pay infrastructure outside of mainland China.

Opportunity

	2017	2022
Need of mobile pay infrastructure outside of China for Chinese travelers	89 million	124 million
Corresponding transaction volume (USD)	208 billion	280 billion

* Cross-checked statistics from various sources.
** Outbound Chinese Tourism and Consumption Trends: 2017" Survey, jointly conducted by Nielsen and

SOOMPAY teams are also in discussion with other mobile payment providers in several Asian countries. The purpose is to enlarge the company's portfolio of payment routes and offer services to as many merchants and travelers as possible throughout the world.

ONE-STOP PLATFORM

SOOMPAY helps merchant accept offline mobile payment from nearly all Chinese customers via one simple application (no POS terminal needed).

CUSTOMER FRIENDLY

Chinese customers don't need SOOMPAY and can keep using the mobile pay application they prefer (among Wechatpay, Alipay, QQpay, Unionpay).

STORE ORIENTED

And by using SOOMPAY mobile application, stores, transports, attractions etc⋯ will be able to easily accept Chinese mobile payments.

MINIMUM FEE GOAL

SOOMPAY has committed to minimum fee policy and ensures lower fee than any credit card transactions along with better services.

Simultaneously, SOOMPAY aims at giving cryptocurrencies practical, daily life applications.

SOOMPAY will be the first enterprise to take advantage of 4th Blockchain platform for the development of a mobile crypto payment service. The service will allow both customers and merchants to perform in-store transactions via the cryptocurrency of their choice (BTC, ETH, DASH⋯).

The service will be implemented into SOOM Wallet with a user-friendly approach on the customer side. On the merchant side, sellers will be able to perform payments directly via SOOM Wallet or, for business of bigger size, acquire SOOM TECH's state-of-the-art POS terminal featuring not only cash and credit card payment but also in-store mobile payment and crypto payment (see the sub-section below for more details).

By combining a multitude of mobile payment routes with crypto payment service, SOOMPAY wishes to create a sustainable alternative to credit card transaction profitable to greatest number.

FOOLPROOF SECURITY

AVOID CREDIT CARD FRAUD
PROTECTION OF PRIVATE INFORMATION

FAST TRANSACTION

FASTER VERIFICATION PROCESS THAN BANKS
INSTANT INTERNATIONAL TRANSACTIONS

LOW TRANSACTION FEE

NO BANK OR THIRD-PARTY FEE
NO HIGH INTERNATIONAL TRANSACTION FEE

SUITABLE FOR EVERYONE

BENEFICIAL TO RETAILERS AND CUSTOMERS
BENEFICIAL TO UNDERBANKED POPULATION TOO

5.2.3 4th Blockchain ecosystem promotion through SOOMPAY

As described above, SOOMPAY is a smartphone application for merchants that enables them to accept payments from the most popular Chinese mobile payment systems. In collaboration with SOOM TECH, SOOM-PAY created a SOOM coin based reward mechanism to not only decrease its affiliated merchants' transaction fee expenses, but also to encourage the use of 4th Blockchain and SOOM Coins among merchants.
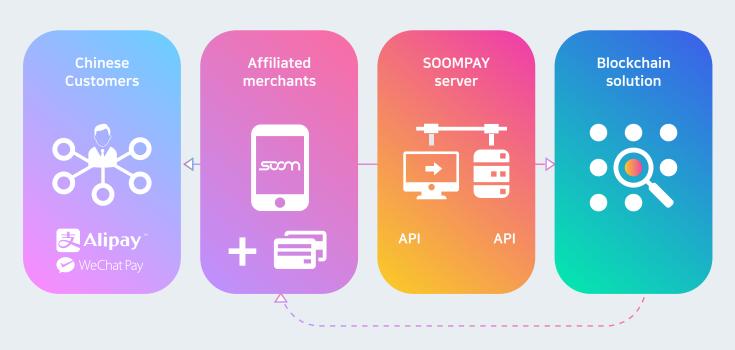
In the current market environment, most merchants have to cope with 2 to 3% commission fee on every transaction. This amount is then distributed between customer's bank, merchant's bank and payment processor system (Visa, MasterCard, Alipay, WeChat Pay and etc.).

Adopting a cost effective approach, SOOMPAY's reward mechanism will function as described below:

1.

Each merchant using SOOMPAY app will get X% of the transaction amount as a reward. This reward bonus will be provided in SOOM coins.

Additionally, after 4th Blockchain main net goes live, merchants will be able to mine new coins with their mobile wallet or X-POS (please refer to following section for more details).

2.

Each merchant holding SOOM coins will also get Y% of the total transaction amount among all merchants. The idea is to encourage merchants to promote the platform among their networks and invite Chinese travelers to use the application as well. By being beneficial to both merchants and travelers, SOOMPAY seeks to create synergy and gain quick widespread adoption.

Payback in SOOM Coins as X% of transaction amount

5.2.4 SOOM Miner

SOOM TECH is developing SOOM miner. Compared to existing mining equipment SOOM Miner has better characteristics. It was designed to efficiently dissipate heat generated during mining. Also power unit is included inside for convenience of installation.

Miner can be used even if outer aluminum case is removed, as it was designed to replace power module in case of incident. On front panel there are LEDs installed to allow easy detection of current miner's operating status. By LED color it can be defined whether miner is in normal condition, standby or fault mode.

SOOM Miner will be pre-integrated into SOOM X-POS.

Item	Specs
Chip Type	ASIC
Hash Algorithm	X11
Hash Power	21GH/s
Power	1350W
Network	Ethernet
Weight	5,000g (excl. power unit)
Size	180 x 310 x 348mm
Temperature	0 ~ 40℃
Humidity	5 ~ 95%

5.2.5 SOOMPAY & SOOM X-POS

When looking at the latest polls, the key reasons behind the currently low merchant adoption of cryptocurrencies as a method of payment is the lack of trust on one hand and complicated user interface that lags behinds conventional POS terminals on the other hand.
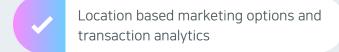
While SOOM Wallet merchant edition's security, flexibility and convenience will meet the needs of small scale merchants, large retailers and department stores will need more.
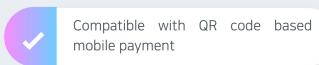
In order to combine the best User Interface possible with the latest technology available and seamless operation of 4th Blockchain, SOOM TECH decided to develop its own POS terminal embedded with 4th Blockchain platform. It was named X-POS.
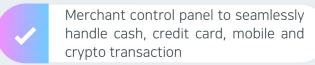
X-POS's main features

✓ Compatible with cash and credit card payment	✓ Compatible with QR code based mobile payment
✓ Embedded with SOOM Wallet merchant edition	✓ Merchant control panel to seamlessly handle cash, credit card, mobile and crypto transaction
✓ Location based marketing options and transaction analytics	✓ SOOM Coin miner

SOOM X-POS's features

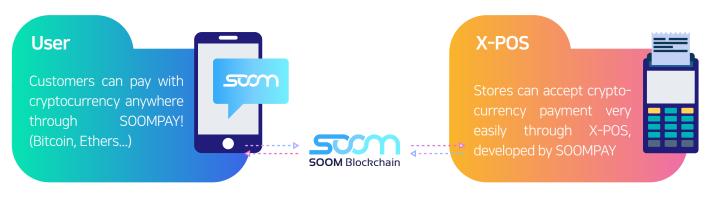| SOOM Coin Miner | Crypto currency transaction | SOOMPAY wallet | POS Terminal | SOOM DUO Marketing solution | In-store mobile payment |

By combining 4th Blockchain and SOOM Wallet's cutting edge features with the widespread adoption of SOOM Pay and X-POS, SOOMPAY seeks to enable anyone to pay with any mobile pay app or coin, anytime, anywhere.

SOOMPAY's long-term ambition is to bring more cohesion between the multitudes of mobile pay services and cryptocurrencies in order to create a sustainable and profitable alternative to credit card payment throughout the globe.

User

Customers can pay with cryptocurrency anywhere through SOOMPAY! (Bitcoin, Ethers...)

SOOM Blockchain

X-POS

Stores can accept cryptocurrency payment very easily through X-POS, developed by SOOMPAY

5.2.6 SOOM Mobile Phone

SOOM TECH is developing SOOM Mobile Phone with OS operating on 4th Blockchain. It can be used simultaneously as wallet and miner. To ease authorization process it was designed to use iris/fingerprint scanner instead of entering password, wallet address and private key.

Furthermore, to level-up security Cold Wallet functionality is built-in, which makes it impossible to make transactions without user verification and confirmation.

SOOM Mobile Phone characteristics

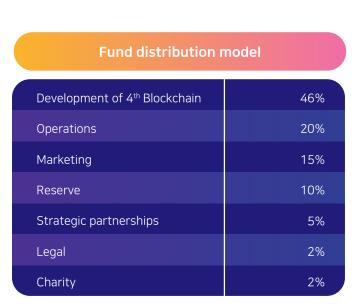|	
1	Support crypto P2P transactions based on 4th Blockchain
2	Optimized for exclusive operation
3	Support payments in Messenger, On/Off line shopping based on 4th Blockchain
4	Established physical security system (Hide IP address, possible to change public MAC address)
5	Built-in Cold Wallet functionality

Coin economy
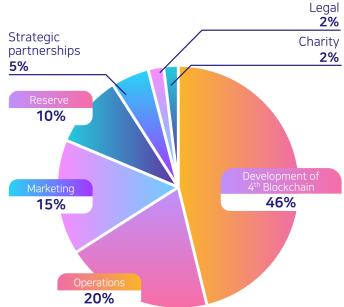
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Coin economy

Several rounds of pre-sales took place during the first half of 2018 across several countries. The conclusion of the overall pre-sale events lead SOOM Foundation to reshape the coin economy in order to better respond to the current market's needs and requirements.

Initial Coin allocation	
Total	1,680,000,000
Distribution to community	672,000,000
Promotion events	16,128,000
Retained for further development	792,272,000
Team and Legal advisors	100,800,000
Mining Reserve	100,800,000

Reshaped Coin allocation	
Total	1,438,000,000
Distribution to Community (Pre-sale 30,000,000 + Airdrop 400,000,000)	430,000,000
4th Blockchain ecosystem promotion	18,000,000
Retained for further development	640,382,000
Team and Legal advisors	190,000,000
POGS, DOT, POW mining rewards	159,618,000

- 242 million SOOM Coins will be burnt.

- 30 million SOOM Coins have been distributed during pre-sale events.

- 400 million coins will be distributed to the community via Airdrops

SOOM Foundation plans to utilize 400 million coins for Airdrop to strengthen community and increase donators' trust. Coins will be distributed through events planned at SOOM Foundation. Its schedule will be announced on homepage and social networks in advance to attract high user interest.

Fund distribution model	
Development of 4th Blockchain	46%
Operations	20%
Marketing	15%
Reserve	10%
Strategic partnerships	5%
Legal	2%
Charity	2%

Legal **2%**
Charity **2%**
Strategic partnerships **5%**
Reserve **10%**
Marketing **15%**
Development of 4th Blockchain **46%**
Operations **20%**

Road Map

40

07

07

Road Map

7.1 Overall project road map

Date	Item
Nov 2017	Establishment of SOOM Foundation - Switzerland
Dec 2017	4th Blockchain Ecosystem International Conference – Jeju Island SOOM Wallet primary version Pre-sale debut
Feb 2018	4th Blockchain Ecosystem Conference – Macao 4th Blockchain Ecosystem Conference – Hanoi, Vietnam 4th Blockchain technology Seminar – Phnom Penh, Cambodia
Apr 2018	4th Blockchain Ecosystem Conference – Beijing, China 4th Blockchain Ecosystem Conference – Tokyo, Japan
June 2018	International Blockchain Technology Forum Hosting – Beijing, China Pre-sale conclusion
July 2018	SOOM Wallet Upgrade I
Aug 2018	Listing of SOOM Coin on exchange platform Contract for Private blockchain development service with KDDI Recruit Blockchain Research Partnership contract with top world universities (LA California State University, University of Tokyo, Waseda University, Konkuk University, Chosun University)
Sep 2018	Presentation of Contents CR (Creative Rocket) Private blockchain development service contract with Korean Dental Association
Oct 2018	Mobile POS Supply contract with Yamato, MX Mobiling
Q4, 2018	Launch of Test-net 4th Blockchain Ecosystem follow-up Conference – Jeju Island SOOM Miner release Open Blockchain TestNet for Changchun Logistics System in China
Q1,2, 2019	Launch of Main net Coin swap to SOOM Coin* SOOM Wallet Upgrade II
Q2, 2019	X-POS release in Asia
Q3, 2019	Big data / customer information analysis API / Documentation release SOOM Crypto Exchange launch
Q4, 2019	X-POS release worldwide SOOM Mobile Phone release

* SOOM Coin is the native currency of 4th Blockchain ecosystem. In order to acquire full functionality, current SOOM coins will be converted into native SOOM coins once 4th Blockchain goes live.
Holders of current coins will be able to exchange them for SOOM coins seamlessly. SOOM coins will be needed to access 4th Blockchain services and will be used by developers to generate tokens for their own blockchain, hosted on 4th Blockchain platform.

7.2 Development Road Map

2018

2018 Q2
- 4th Blockchain core Design & Review
- Mobile wallet Design & Review
- Mining Pool Design & Review

2018 Q3
4th Blockchain core development Stage 1

2018 Q4
- 4th Blockchain core development Stage 2
- Mobile wallet Development
- Mining Pool Development

2019 Q1
- Open 4th Blockchain
- Open Mobile wallet Draft Version
- Open Mining Pool Draft Version

2019 Q2
- Open 4th Blockchain
- Mobile wallet Release
- Open Mining Pool Stable Version
- Open Source code to public

2019

Legal Notice

08

08 Legal Notice

- SOOM Coin does not have legal characteristics of securities. SOOM Coin does not provide any rights to dividend or interest. Your purchase of SOOM Coin is final and non-refundable. As SOOM Coin is not a security, it does not give any right to attend the meeting of SOOM foundation.

- This White Paper does not constitute any contracts or agreements and it is not legally binding.

- Although we tried to make this White Paper with accuracy, the information contained herein may change and we do not guarantee or take responsibility for the content's accuracy or perfection.
It is strongly suggested that before you purchase SOOM Coin, you should conduct a detailed research on any relevant information or regulation, and be aware of the regulations in the relevant jurisdiction(s).

- Obtaining and keeping SOOM Coin may involve various risks, which includes a situation SOOM Blockchain is not developed as planned or does not provide the services as planned. Thus, it is suggested that you consider all the risks, prices, and benefits relating to SOOM Coin. It is also suggested that you seek professional advice if you consider necessary.

- If the risks described herein are not fully understood and/or accepted, it is strongly advised not to purchase SOOM Coin.

- This White Paper purports to provide any relevant information relating to the launch of the coin offered to potential purchasers. The content of the White Paper might not be immaculate and does not contain any characteristics of an agreement or contract. The purpose of this White Paper is to provide reasonable information to potential purchaser. Potential purchasers of SOOM Coin are invited to analyze the present or future value of SOOM Coin.

- No part of this White Paper is intended to be characterized as a proposal or an invitation to an investment, and it does not contain any type of offer to purchase a security. Furthermore, any content of this White Paper does not constitute an advertisement or marketing material, and has nothing to do with an offer or purchase of a security in the relevant jurisdiction.

- This White Paper purports to provide explanation about a project (technological solution) and does not contain any type of opinion or promise. It also does not guarantee that the project will fulfill your expectation in terms of feasibility and competitiveness.

- The purchaser agrees that they have read carefully the terms and conditions attached to the white paper comply with all the relevant laws that apply in their jurisdiction of domicile including law relating to any illegal activity, including but not limited to money laundering and the financing of terrorism. The purchaser also agrees that they have sufficient knowledge about the nature of the cryptographic tokens and have significant experience with, and functional understanding of, the usage and intricacies of dealing with cryptographic tokens and currencies and blockchain-based systems and services.

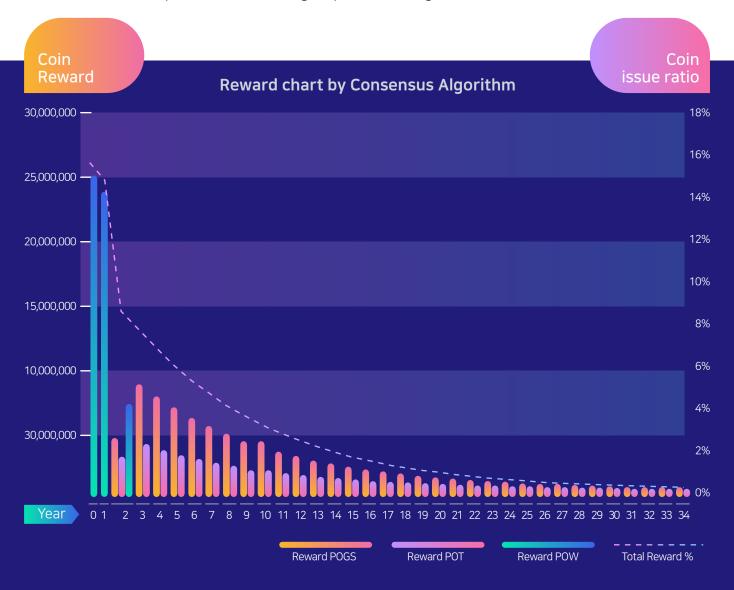- In case of dispute, the Korean version of this white paper shall prevail.

Appendix

09

Appendix

9.1 Reward by Consensus Algorithm

- 4th Blockchain is operated through 3 consensus algorithms: POGS, POT, POW.
- 4th Blockchain will provide Reward during 35 years according to chart below.

Coin Reward

Coin issue ratio

Reward chart by Consensus Algorithm

Reward POGS   Reward POT   Reward POW   Total Reward %

From year 0 till year 1 reward will be given only through POW. From year 2 on, reward will be provided simultaneously through POW, POGS and POT. From year 3 till year 34, reward will not be given through POW anymore but will be divided between POGS and POT as 7:3 ratio.

Reward will be gradually cut by 12% every year. After 35 years, the reward mechanism will stop completely.