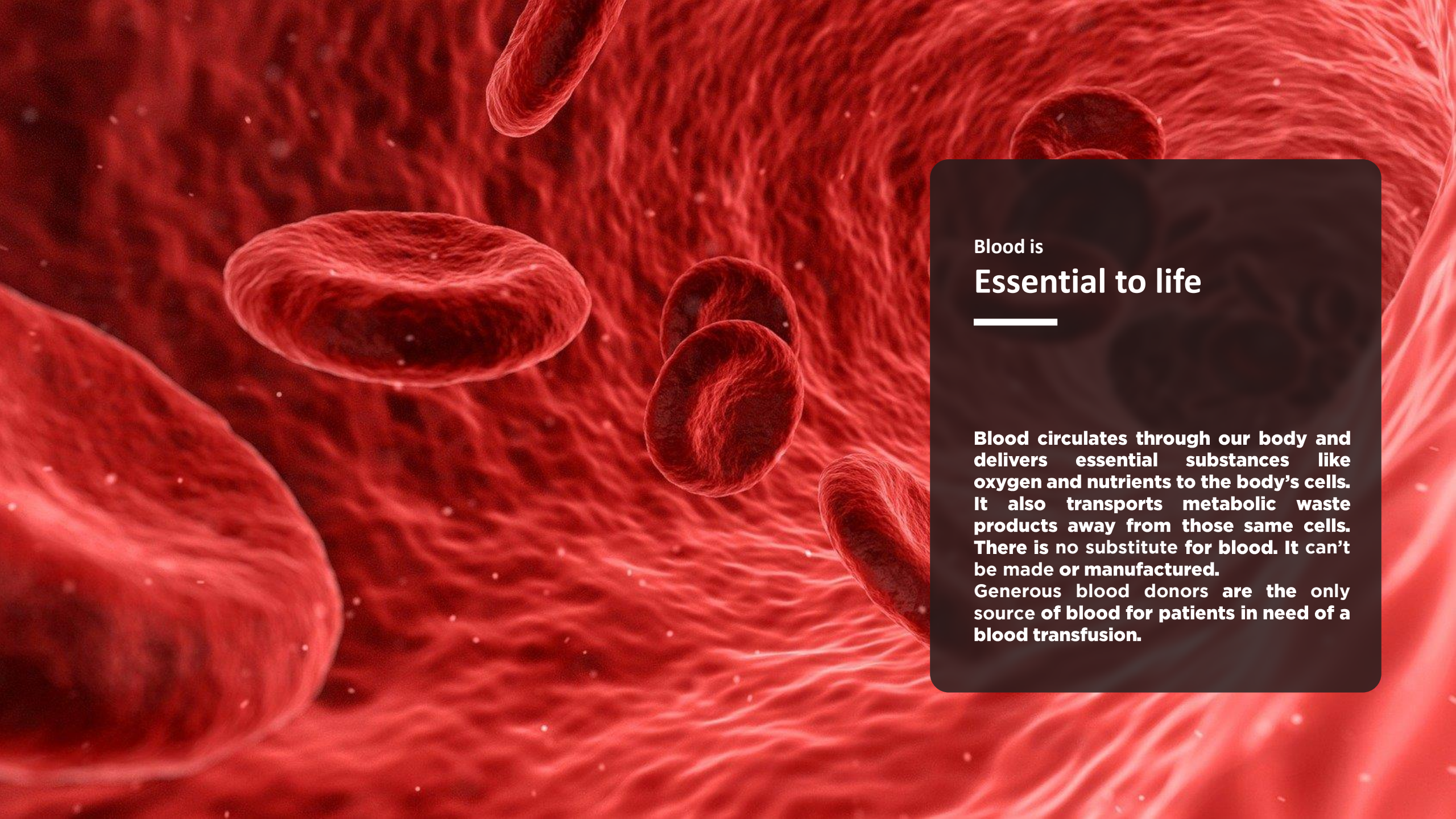




ZK-Rollups, Scalability and dApps

CARMIN LABS

Last Updated on August 24, 2022

A detailed 3D rendering of a blood vessel's interior. The vessel wall is shown as a textured, wavy red surface. Several red blood cells, depicted as biconcave discs with a darker red center, are shown in motion, flowing through the vessel. The overall color palette is various shades of red, creating a sense of depth and movement.

Blood is

Essential to life

Blood circulates through our body and delivers essential substances like oxygen and nutrients to the body's cells. It also transports metabolic waste products away from those same cells. There is no substitute for blood. It can't be made or manufactured. Generous blood donors are the only source of blood for patients in need of a blood transfusion.



[Carmine: A Rich and Vivid Red]

Carmine means a rich and vivid red color and is regarded as a blood color.

Like a blood, we believe CARMIN will be 1) VITAL, 2) IRREPALCEABLE, and
3) THE ONLY SOURCE OF BLOCKCHAIN beyond a Mainnet.



Market Trend

Landscape of Mainnet Project in Korea

- ❑ No Company in Korea has Original Technology of Blockchain
 - ❑ Klaytn, Lamda 256: Ethereum-based Mainnet
 - ❑ Samsung Nexledger, LG Monachain, KT Gigachain: Hyperledger Fabric-based Mainnet
 - ❑ CARMIN Has Our Own Consensus Algorithm and Original Blockchain Technology
-
- **CARMIN Mainnet 1.0 Meets Most of ETRI's Nine Solutions To Be Resolved**
 - **Considering International Expansion with More dApps and Alliance**

Mainnet Comparison Chart

OS	Finality	Speed	Consensus	Virtual Machine	Demonstration	Architecture
CARMIN	1~5 sec	<ul style="list-style-type: none"> 1,000 TPS(Global) 3,000 TPS(Asia Pacific) 8,000 TPS(Local) 	PoS	CARMIN Commit Engine	Mainnet	Layer2-Blockchain
Ethereum	1.5 min ~	15 TPS	PoW	EVM	Mainnet	Single-Blockchain
COSMOS	3~7 sec	1,000 ~ 3,000 TPS	Tendermint(PoS)	-	Mainnet	Cosmos Hub
HYPERLEDGER	N/A	N/A	PoET(Elapsed Time)	Various	No public use case	Modular complex architecture
EOS	Less than 1 sec	<ul style="list-style-type: none"> 100,000 TPS 3,800 TPS(Proven) 	dPoS	EOS VM	Mainnet	Parallel processing
Klaytn	1 sec	8,000 tps(In Cloud)	PoW	EVM	Klaytn	Based on Ethereum
Nexledger	3~7 sec	800~1,500 tps	PoA	Hyperledger VM	Nexledger Universal	Based on Hyperledger
GIGACHAIN	3~7 sec	400~1,000 tps	PoA	Hyperledger VM	GiGACHAINBaaS	Based on Hyperledger
Monachain	3~7 sec	N/A	N/A	N/A	LG CNS Blockchain Platform	N/A
Lambda256	1 sec	~2,000 tps	PoA	EVM Hyperledger VM	Luniverse Platform	Based on Ethereum & Hyperledger



Vision & Mission Statements

World's Dominant OS by Platform

Blockchain



Desktop

Mobile

Mission Statements

2022

Go For Global Top 10

CARMIN Mainnet, dAPPs and DEX

● **Launching Blockchain Mainnet 3.0 and Its Optimization** (First Half of 2022)

● **Enhancing CARMIN Mainnet with dApps** (Second Half of 2022)

- Launching Five Powerful dApps by 2022
- Providing Low Tech Companies with Low-Cost but Highly Effective Blockchain Solutions
- Expanding CARMIN Ecosystem and Proving Competitiveness of CARMIN
- Capturing Fan & User Base by dApp Alliance
- Establishing High TPS with Highly Effective Nodes

● **CARMIN's Digital Asset Exchange Services (2023)**

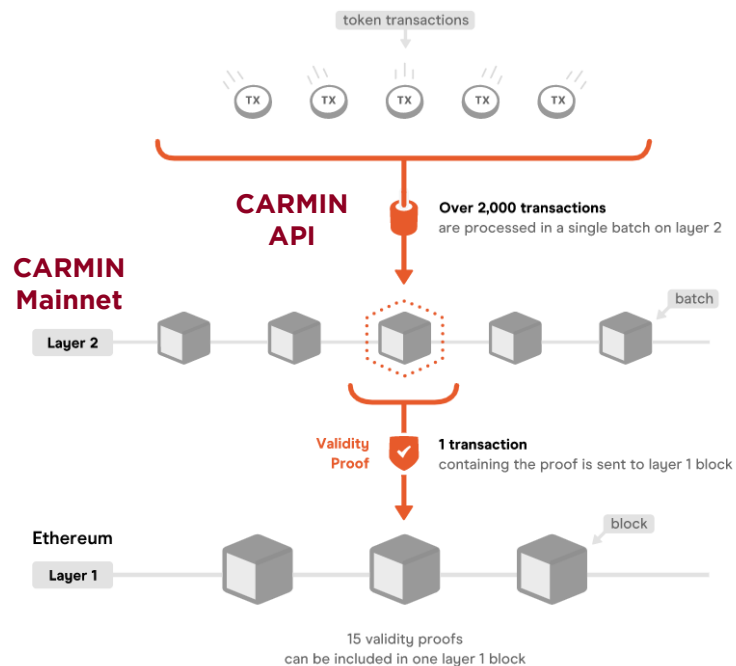
- Offering Security, Ease of Use, and Privacy with CARMIN's Original Solutions
- CARMIN's Easy, Open, and Decentralized Crypto Exchange (DEX)



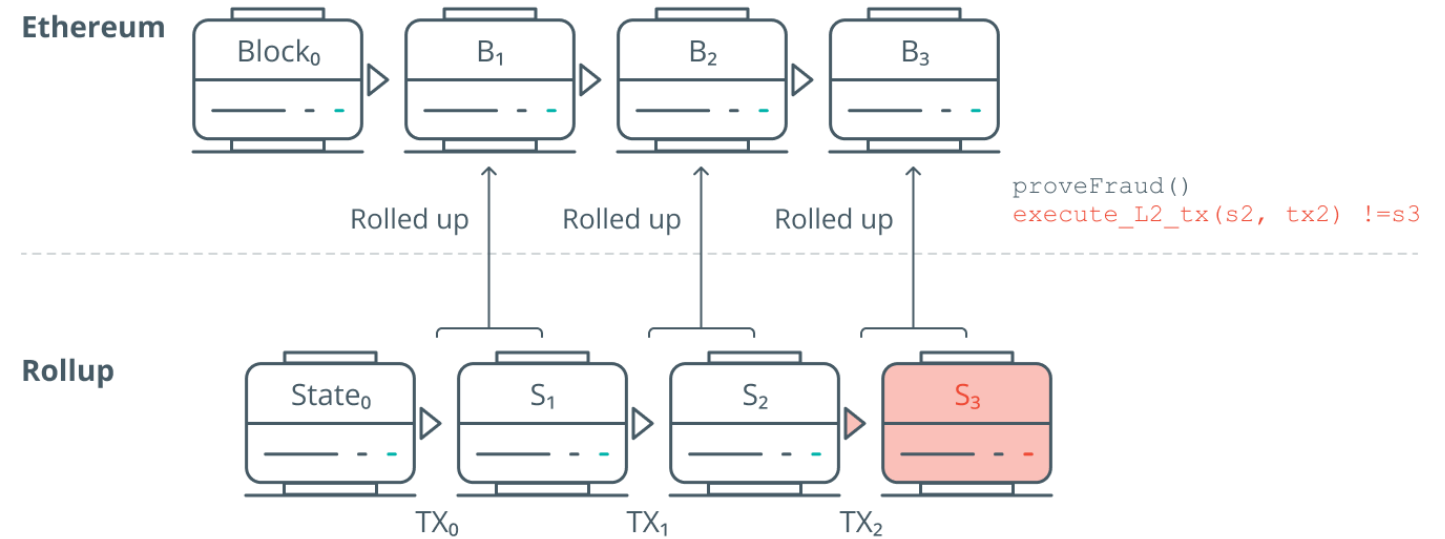
Technology Summary

ZK-Rollups

- Zero-Knowledge Rollups are Layer 2 Scaling Solutions
- Increase Throughput on Ethereum Mainnet by Removing Computation and State-Storage Off-Chain
- Process Thousands of Transactions In A Batch and Only Post Minimal Summary Data to Mainnet



How do rollups work



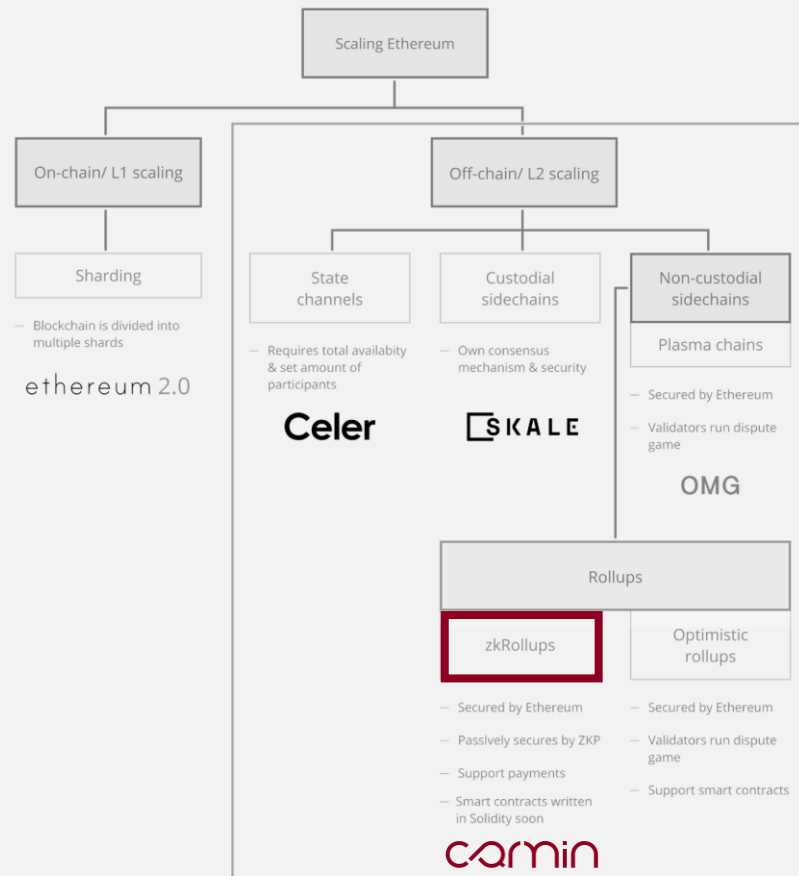
ZK-Rollups vs. Others

	Withdrawal Time	Required Trust	Privacy	Throughput	Gas Fee	Cross-chain interoperability
Channels	Instant withdrawal	High	High	Very High	Very Low	No
Plasma	7 Days	Medium	Medium	High	Low	Yes
Optimistic Rollup	7 Days	Medium	Medium	Medium	Low	Yes
ZK-Rollup	Instant withdrawal	Low	High	High	Medium	Yes

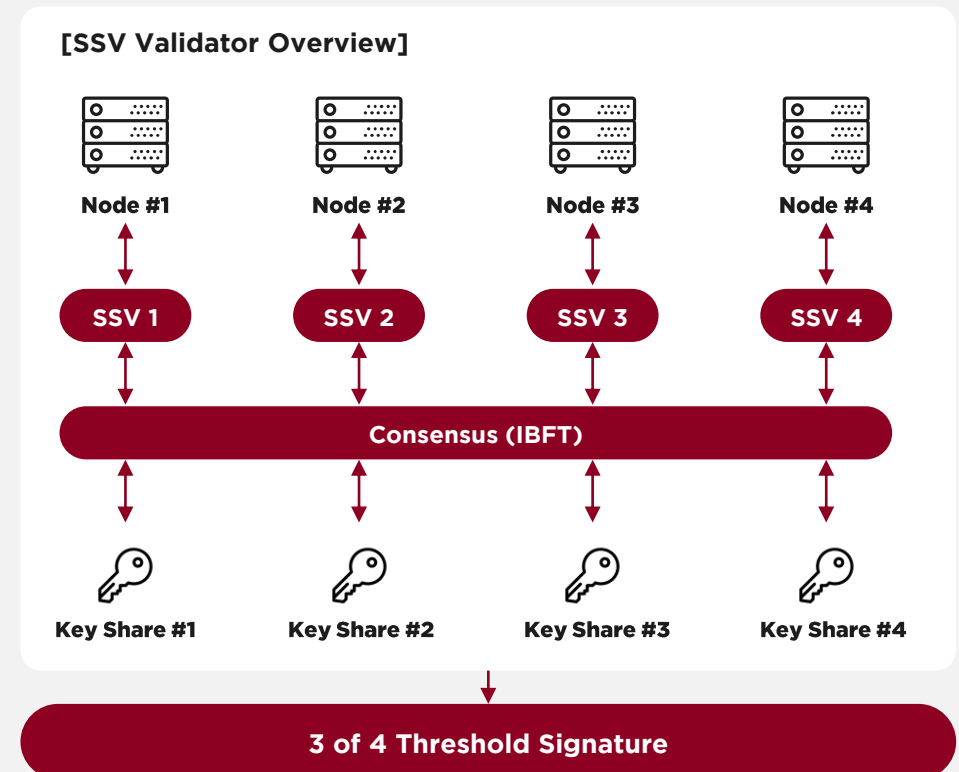
where are we in Q4 2021

Technology Complicacy	Easy				Hard
Description	State Channels Payment channel is the most obvious form of state channel.	Plasma Ethereum's native child-chain secured by the Ethereum mainnet but operate on its own consensus mechanism and its own token. Plasma	Rollups Rollups scale Ethereum by executing transactions on a separate EVM-compatible chain before batching, compressing, and posting to Ethereum Mainnet. There are 2 types of rollups: Optimistic Rollup and Zero-knowledge proof rollup.		
Main Technology	Smart contract	Smart contract Merkle Tree	Smart contract Merkle Tree	Smart contract Merkle Tree Zero-knowledge proof cryptography	
Limitation	1 Don't support open participation (Need to know the participants ex ante and can only perform transfer with another party which is in the channel already, changes of participants requires a change of the smart contract code)	Solved (can send fund to people who are not in the plasma chain)	Solved	Solved	
	2 Application purpose (cannot run all type of smart contract like EVM, smart contract)	Application purpose	Solved - Support general purpose smart contract (can run most of the smart contract like EVM on Ethereum)	not yet fully support general purpose (StarkWare is working on general purpose EVM for ZK rollups in Cairo, will explore further in the next post)	
	3 Someone must stay online to keep the channel alive and monitor the transaction within the channel	Require plasma operators to stay online and send hash to Ethereum root-chain at regular interval	Require rollup sequencer to stay online to monitor rollup block to prevent fraud	Solved (less downtime risk if sequencer is not operating properly)	
	4 Must have a logical owner (cannot be used in AMM e.g. Uniswap)	Must have a logical owner	Solved - DeFi-friendly solution	Solved - DeFi-friendly solution	
	5 Can transfer ETH directly	Require to use a ERC-20 token to perform the transaction not ETH e.g. wrapped ETH (WETH)	- Optimism use WETH - Arbitrum can transfer ETH directly	Can transfer ETH directly	

Rollup Position & How IBFT 2.0 Works



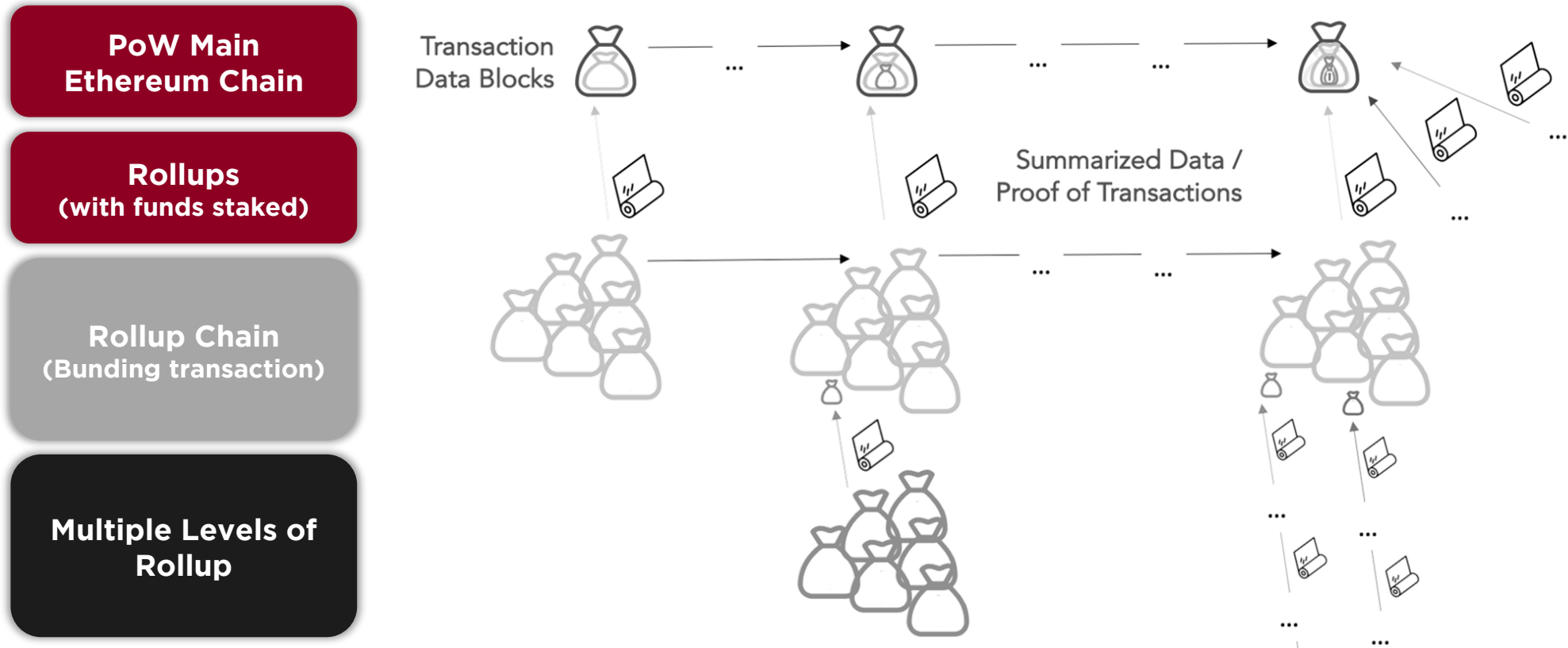
CARMIN IBFT 2.0의 구현 방식



Multi-chain For Processing Mass Data

Generation-Rollup For Data Security

- Dynamic Data Block for Processing Mass Data
- Scaling Side Chain for Storing Generation Block
- Scaling Cross Chain & Data Block by Additional Layers





Go-To-Market Strategy

Three Pillars of CARMIN

01



Exchange & Payments Public DEX

- ❑ Blockchain-based DEX
- ❑ Posting all transactions and deposits/withdrawals on blockchain
- ❑ Only pay with CARMIN
- ❑ Customer data are managed on blockchain to comply with KYC/AML

02



Trading NFTs NFTs

- ❑ NFT Market for trading digital arts, content, and IPs
- ❑ CARMIN's 1st dApp "NFT MOA"
- ❑ Co-working with BITMIC Gallery
- ❑ Released NFT MOA Service (July 14, 202)

03



dApps P2E / M2E

- ❑ Partnered with move to earn platform "LetsMove"
- ❑ Partnered with play to earn game "Puzzle Fantasy"
- ❑ Token-enabled WEB3 payment services
- ❑ Mainnet Services & NFT Minting
- ❑ dAPPs for B2B

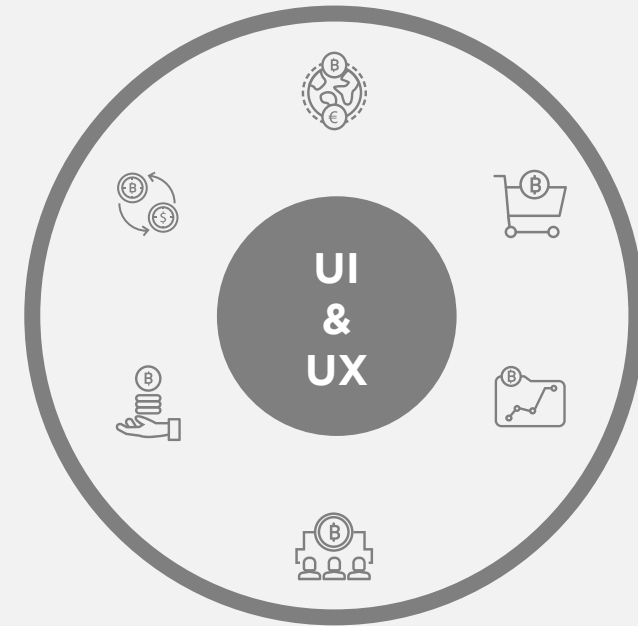
CARMIN's DEX

- Solved DEX's Problems: No Reference Price / Slippage Fees/ Low Liquidity
- Payment Module Services and DID
- Preparing DEX Service
- Supporting Open API for other DEXs
- Processing A Crypto DEX License in Dubai and Abu Dhabi

Provide Diverse Service Solutions



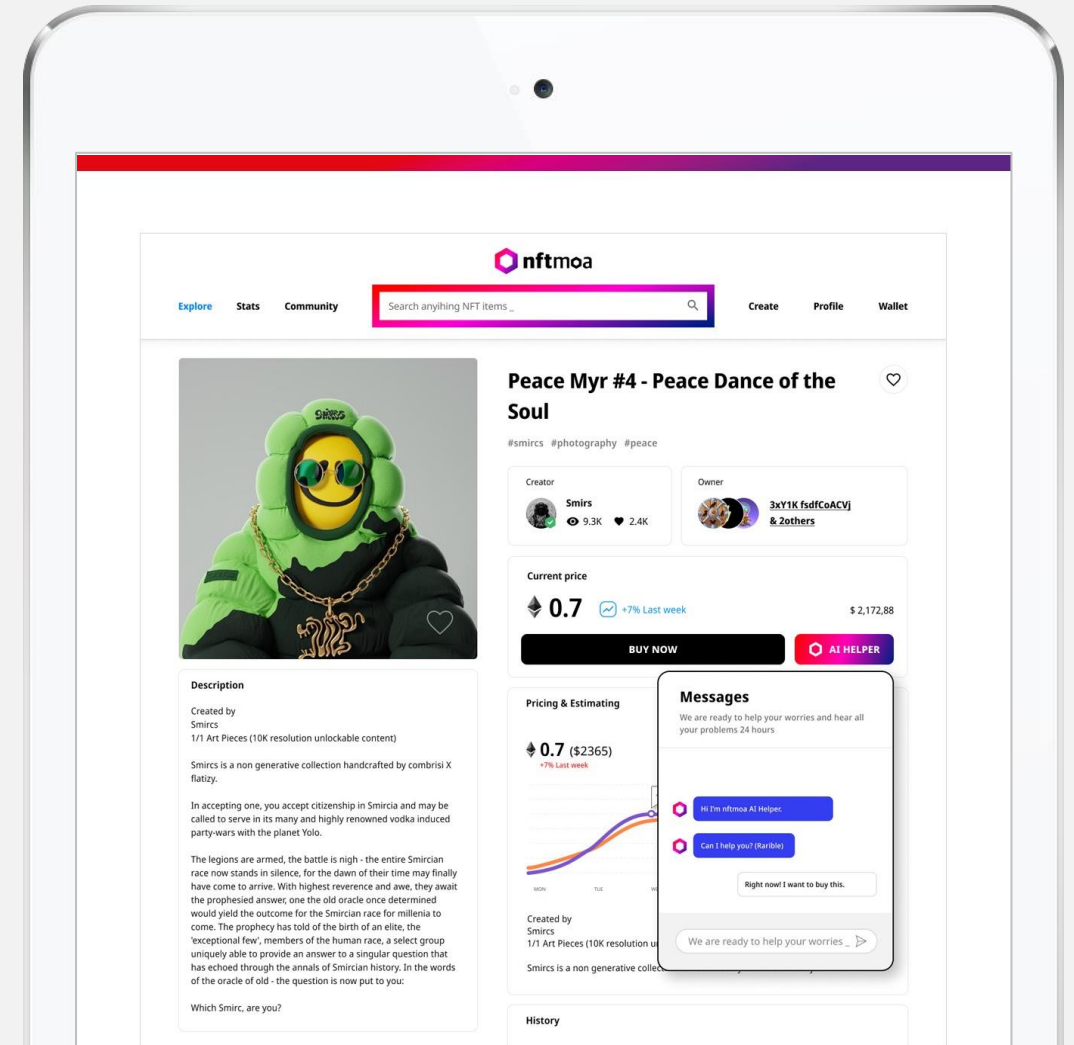
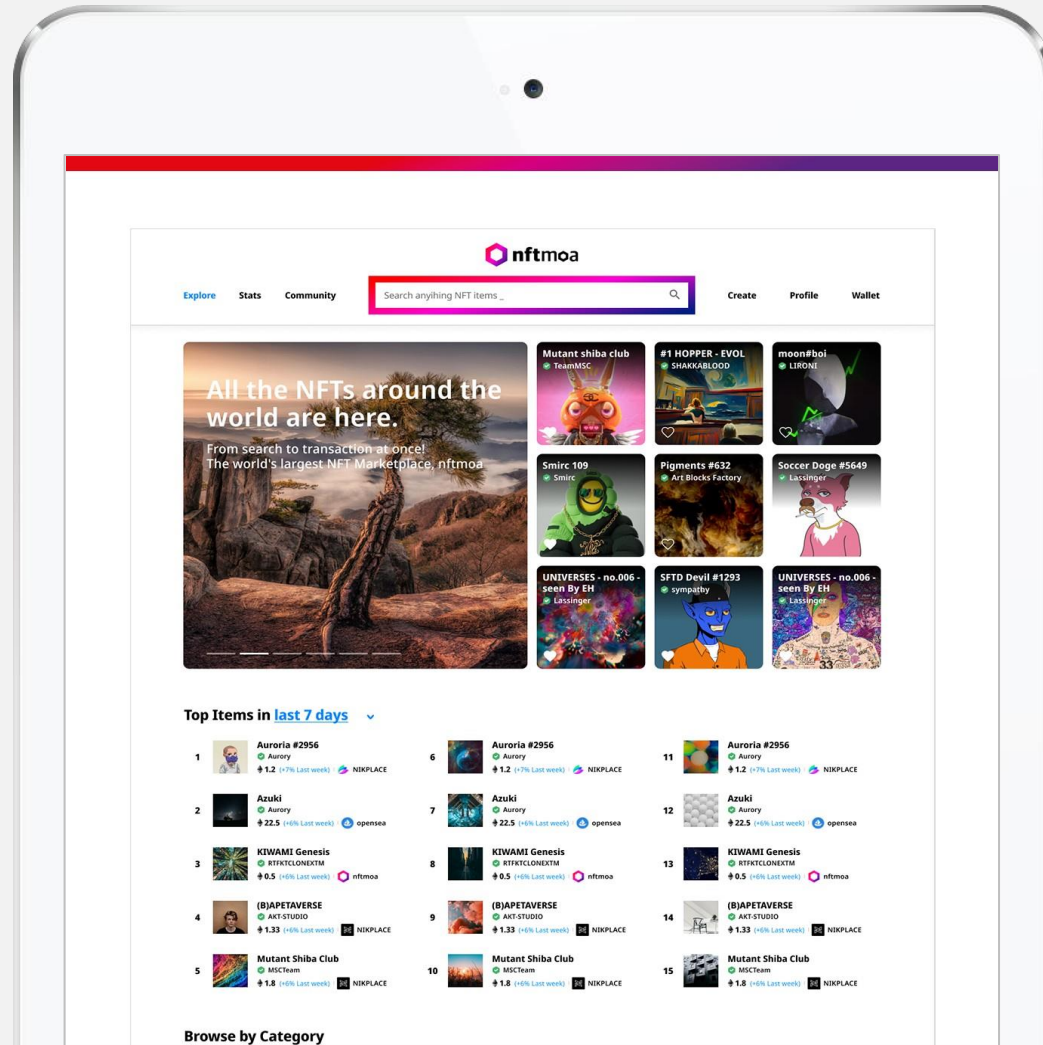
Same UI UX with Centralized
Crypto Exchanges



NFT MOA (NFT Portal Platform)

Trade all NFT collections around the world in the easiest, simplest and safest way on NFT MOA

(<https://nftmoa.io/>)

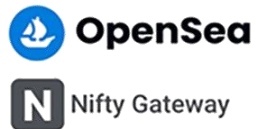


7.Community

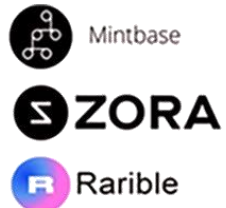
NFT MOA's Expansion

NFT MOA Supports Most Major NFT Platforms

NFT Aggregator/Issuers



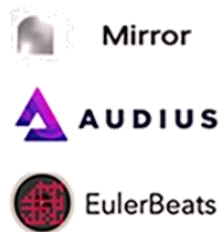
Generalized & Issuance Protocols



Art



Niche NFT Contents



Game



Sports



NFT MOA's Main Business



크리에이터

- NFT 리스팅 수수료
- NFT 판매 수수료

컬렉터

- NFT 구매 결제
- NFT 재판매 수수료
- NFT 구매 대행 수수료



- NFT 작품 통합 검색 및 구매 도우미
- 주요 NFT 트렌드 및 작품 평가
- NFT 판매 현황 및 분석(Reporting)

외부 마켓플레이스 거래 중개 수수료

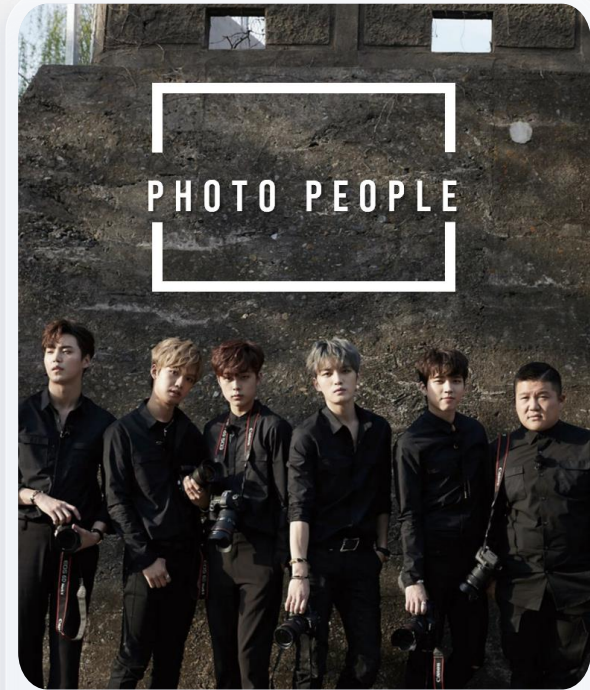
CARMIN ONLY dApp "BITMIC"



One of highest grossing actors in South Korea, Ha Jung-Woo. We can now enjoy his NFTs ONLY on BITMIC, CARMIN dAPP



Opensea superstar "Supernormal" teamed up with BITMIC recently



A teen-idol rock star Jaejoong and a famous South Korean comedian Jo se-ho released their NFTs only on BITMIC

BITMIC Gallery & METaverse Service



BITMIC NFT Online Gallery ▶

M2E Platform “Let’s Move”



Anyone can earn LEMO tokens by simply moving like running, biking, swimming, hiking and more



Start Moving and Make Money

P2E Platform “Puzzle Fantasy”

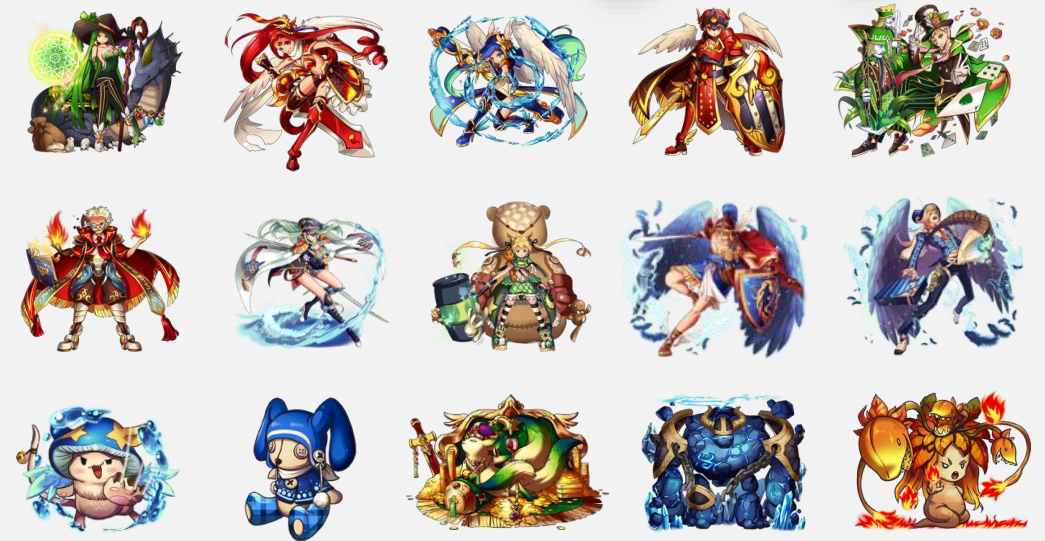
- <https://puzzlefantasy.io>
- <https://discord.gg/jJMYcv5qMQ>
- Partnership with Bitforex

▼ Puzzle Role Playing Game



 **BitForex**

Buy, Sell, and Trading
NFTs on NFT Market ►





Revenue Stream

01



Exchange & Payments
Public DEX

02

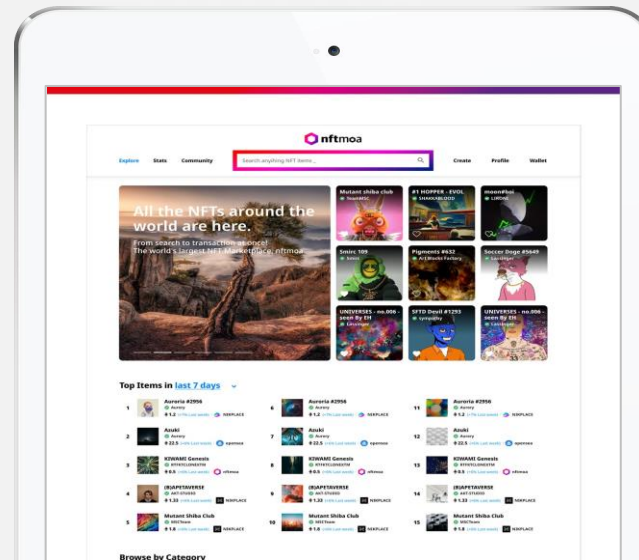


Trading NFTs
NFTs

03



dApps
Play/Move to Earn





What Is So Special About CARMIN?

5nm Chipmaker for SHA-256



LKconvergence
Promotion & Marketing

 **nftmoa**
Software Engineers

No Outsourcing!

**CARMIN's established powerful
IN-HOUSE Alliance.**

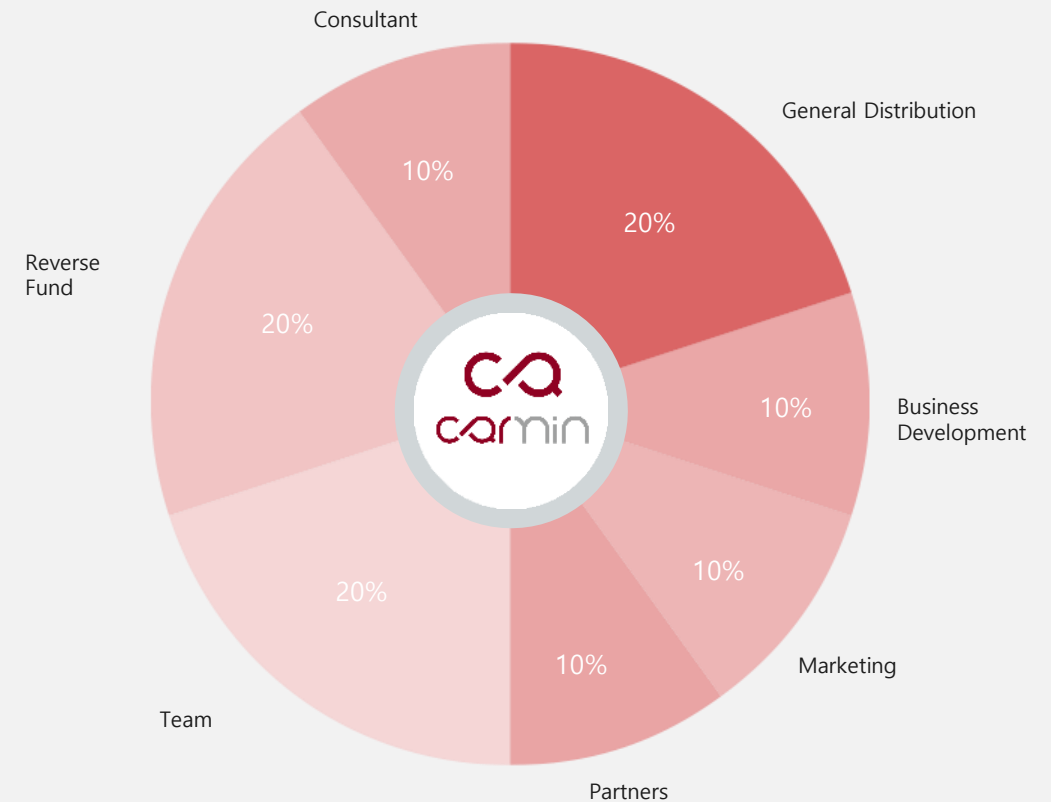


Token & Team

Token economy

CARMIN Token was developed based on various platforms such as BSC Chain, ETH, and Klay. In particular, the first circulating BSC Chain-based token will be the first public token. Token details are as follows.

Item	Amount	%
Total Coin Issued(Coin)	2,000,000,000	100%
Public(General Distribution)	400,000,000	20%
Market Development (Business Development)	200,000,000	10%
Marketing	200,000,000	10%
Business Partners	200,000,000	10%
Team	400,000,000	20%
CARMIN Fund(Reverse Fund)	400,000,000	20%
Advisor(Consultant)	200,000,000	10%



Roadmap

CARMIN will invest, provide technical support, and grow together to attract various dApp contents on its own platform. This CARMIN Platform will be opened in stages according to the service perfection and customer response.

2022. 04

- Token Build
- Mainnet Design

2022. 12

- Open NFT Metaverse Gallery
- Dedicated wallet service open

2022. 06

- NFTMOA Testbed open
- Mainnet Transaction Test

2023. 04

- 2nd Exchange Listing
- Global wallet service open
- dApp integration service open

2022. 08

- Angel investment completed
- Completed the establishment of the head office

2023. 07

- Global DEX Open
- Global NFT DEX Open

2022. 10

- Huobi listing complete
- Opened NFTMOA service

2024. 01

- Mainnet Version 2.0
- Blue level hard fork in progress

Management



Stuart S. Lee
Co-Founder & CEO

- 스탠포드 출신 실리콘밸리 본사 대표
- CEO, CARMIN Labs
- COO, AIQ Blockchain
- Co-Founder & CEO, ALFA DLTA Inc.
- Co-Founder & CEO, Things Video
- Co-Founder & CEO, SPORANK Technology
- CEO, Posing Technology
- Stanford University



Ryan Lee
Co-Founder & CSO

- 아시아 블록체인 개발총괄
- Supreme Finance CTO
- TONE Foundation & DEVISOFT, CEO
- Atomic Idea Singapore CTO.
- LK Convergence, CSO
- Korea Telecom & Samsung SDS Cloud Architecture
- Master of Engineering, Yonsei University



Junseok Kang
cco

- 블록체인 마케팅 전문
- CARMIN CCO
- LKConvergence CEO
- DEVI Soft Contents Team
- KTH Paran ContentsTeam : Publisher (from Dec 2006 to present)
- YNK Contents Team : Consultant & Publisher(from May 2001 to Nov 2004)
- Crypto currency Mining & Analyst , Promoter



Aiden Song
Co-Founder & COO

- 글로벌 거래소 리스팅 담당
- CoinBene VIETNAM, CEO
- Symverse Vietnam, Advisor
- Golden Pacific Vietnam, CEO
- IBK Investment & Securities Senior private banker
- Samsung Securities Senior private banker
- Graduated from Kyunghee University

Management



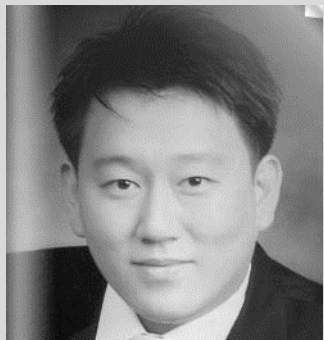
Jina Park
CMO

- Global NFT 유통 및 마케팅 전문
- NFT Planner & Marketing (BITMIC ,BTSC)
- NFT Art curator (BITMIC, BTSC)
- Hana Financial NFT Art Director
- O2O Marketing expert
- Motorsports Marketing Planner
 - Audi R8 LMS Cup
 - Ferrari Challenge
 - Porsche Carrera Cup
 - Lamborghini Blancpain Super Trofeo
 - Asian Le Mans Series etc



Cris Lee
Senior engineer

- 전자 지갑 및 클라우드 전문개발
- Neowiz enc Member : Contents Developer & Project Manager, Blockchain Mainnet developer
- KT Cloud, SDS : Cloud.com, Samsung S-Cloud Service PM
- International Database Analyst- Bigdata Database (Mongo), SQL DBA
- Hongkong & Veitnam International Exchange, crypto currency developer



H. Peter Kim
Co-Founder & Chief Advisor

- AIQ 블록체인 칩 개발사 이사
- Co-Founder, CARMIN Labs
- CEO, AIQ Network
- CTO, AIQ Blockchain
- Washington University in St. Louis



Owain Harris
dApp CTO

- **dApp Contents 개발 관리 팀장**
- CARMIN dApp Dev Team
- BITMIC dApp CTO
- Tangram Software Developer
- Ink Trendz Software Developer
- Smartsoftware Solutions Pty Senior Consultant
- Deltek Customer care analyst
- Sohmar Support Manager

Software Engineers



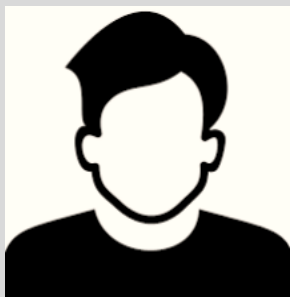
Seongsik Kim
CTO

- 빗썸 출신 블록체인 전문 CTO
- Dongguk Univ. Information Communication Engineering
- CEO & CTO, ST Unitas SLG
- CTO, FEELWAY
- CTO, Bithumb & Huobi Korea
- PMO, NAVER corp. & TMON corp.
- Development of SK Telink platform for payment and charging, calculation system
- Development of Backend for Shinsegae I&C



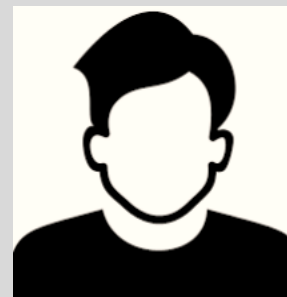
Yeonseong Shin

- **Layer2** 블록체인 총괄 개발팀장
- 18 years in Development for overall Blockchain
- Development for Multi(Cross) Chain & Contract Factory Scanning Engine
- Development for NFT Marketplace
- Development for mainnet of Ethereum L2 Hard Fork (ZK-rollup)
- Development for ERC integrated Payment system
- Development for Mobile Wallet Gateway



Eojin Lee

- ADA 메인넷 개발팀 출신
- 8 years in Development for Blockchain
- Development for Bridge Chain & Contract Factory Scanning Engine
- Development for NFT Marketplace
- Development for mainnet of ADA Cardano Hard Fork
- Development for ERC integrated Payment system
- Development for Mobile Wallet Gateway



Myeongho Chou

- **ADA** 메인넷 개발팀 출신
- 6 years in Development for Blockchain
- Development for Bridge Chain & Contract Factory Scanning Engine
- Development for NFT Marketplace
- Development for mainnet of ADA Cardano Hard Fork
- Development for ERC integrated Payment system
- Development for Mobile Wallet Gateway

Software Engineers



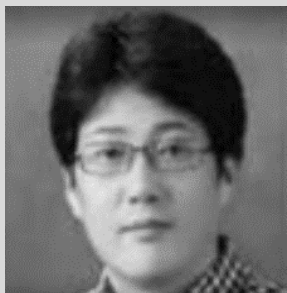
Seonghoon Park

- 19 years in Development for AI & Searching
- Director of Megazone platform Development team
- Director of WITHinnovation Development team
- Director of BALAAN FrontEnd Development team
- Director for searching engine development of YAHOO Korea
- Director of Plus-MX Development team
- Director of Happyrising technical laboratory
- Director of INVENTURE Technology Development team



Janghyuck Cho

- 20 years in Development for overall Server
- Senior Developer in Bungaejangter platform laboratory
- Director of ST Unitas Development team
- Director of Megazonecloud Development team
- Director of WITHinnovation Service Development team
- Director of TMON Development team
- Director of NAVER PWE Development laboratory
- Director of NHN / NTS Development team
- Development for dictionary service of YAHOO Korea named information and future



Youngjun Seo

- 20 years in Development for payment and billing system
- Development for overall middleware in ST Unitas EDU-Tech laboratory
- Director of KT Pay Development team
- Director of Pay Letter Development team
- Director of Hanafos.com's Membership Development team
- Senior Developer in Microsoft Web Billing Development



Jaehyun Kim

- 17 years in Development for overall E-Commerce
- Development for TMON and Bungaejangter platform
- Development for digital asset platform of KT Alpha
- Development for personal emoji marketplace utilized META engine
- Development for AI-based commerce optimization server distribution solution
- Development for virtual society-based Instagram mapping interworking

Software Engineers



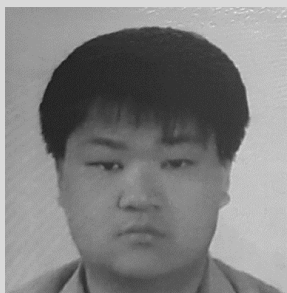
Jaewook Jeong

- 20 years in UI & UX overall Design
- Director for service planning and overall UI/UX design of "S" Company
- Director for UI/ UX design of Daum Communication-UX LAB (News & Mypage section)
- Director for service and mobile UI/UX design of Megastudy
- Director for overall UI/UX design of SkyEdu



Junphil Hwang

- 13 years in Development for overall FrontEnd
- Development for Frontend of FEELWAY
- Development for React of Huobi Korea
- Development for personal emoji marketplace utilized META engine
- Development for AI-based commerce optimization server distribution solution
- Development for virtual society-based Instagram mapping interworking



Jeasun Lee

- Director for Mecaverse platform service of UINetworks
- Director for service planning of ST Unitas SLG
- Director for service planning of Bithumb & Huobi Korea
- Director for service planning of NAVER corp. & TMON corp.
- Director for service planning of SK Telink platform
- Director for service planning of Shinsegae I&C and Shinsegae mall



Wonseok Choi


- 21 years in charge of Business Strategy
- CMO, Director for New business department of "N" Company
- CMO, Director for Marketing department of Bithumb
- Director of TMON Marketing and W/G Group
- Director for Marketing of Samsungwelstorymall
- Director for Marketing of Shinsegae online mall
- Director for online Marketing in charge of Lotte.com service renewal



Company

Headquarters in Singapore

ACCOUNTING AND CORPORATE REGULATORY AUTHORITY
(ACRA)



INFORMATION RESOURCES

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Business Profile (Company) of **CARMIN LABS PTE. LTD. (202222726W)** Date: 01/07/2022

The Following Are The Brief Particulars of :

UEN	:	202222726W	
Company Name.	:	CARMIN LABS PTE. LTD.	
Former Name if any	:		
Incorporation Date.	:	01/07/2022	
Company Type	:	EXEMPT PRIVATE COMPANY LIMITED BY SHARES	
Status	:	Live Company	
Status Date	:	01/07/2022	
Principal Activities			
Activities (I)	:	MANAGEMENT CONSULTANCY SERVICES (70201)	
Description	:		
Activities (II)	:	INFORMATION TECHNOLOGY CYBERSECURITY CONSULTANCY (62022)	
Description	:		
Capital			
Issued Share Capital (AMOUNT)	Number of Shares *	Currency	Share Type
100000	10000	SINGAPORE, DOLLARS	ORDINARY
* Number of Shares includes number of Treasury Shares			
Paid-Up Capital (AMOUNT)	Number of Shares	Currency	Share Type
COMPANY HAS THE FOLLOWING ORDINARY SHARES HELD AS TREASURY SHARES			
Number Of Shares	Currency		

Authentication No. : 022517174K

THE COMPANIES ACT (CHAPTER 50)
A PRIVATE COMPANY LIMITED BY SHARES
CONSTITUTION OF
CARMIN LABS PTE. LTD.

Page 1 of 22

1. The name of the company is CARMIN LABS PTE. LTD.

2. The registered office of the company is situated in the Republic of Singapore.

**111 SOMERSET ROAD #06-01C
111 SOMERSET SINGAPORE
238164**

3. The liability of the members is limited.

4. The share capital of the company is:

<u>Currency</u>	<u>Amount of Issued Share Capital</u>
SINGAPORE DOLLARS (SGD)	100,000

5. We, the persons whose names and occupations are set out in this Constitution, desire to form a company in pursuance of this Constitution and we each agree to take the number of shares in the capital of the company set out against our respective names.

<u>Name of Subscribers</u>	<u>Occupation of Subscribers</u>	<u>Number of Shares Allotted</u>	<u>Class of shares</u>	<u>Currency</u>
KAT			Ordinary	SINGAPORE DOLLARS (SGD)
KIM			Ordinary	SINGAPORE DOLLARS (SGD)
LEE			Ordinary	SINGAPORE DOLLARS (SGD)
KIM PEI			Ordinary	SINGAPORE DOLLARS (SGD)

Partners

Investors



Hardware / Chipmaker



AIQ Blockchain, Inc.



Alliance



Software Dev.

CARMIN Offices





Muchas Gracias!

slee@carmin.inc