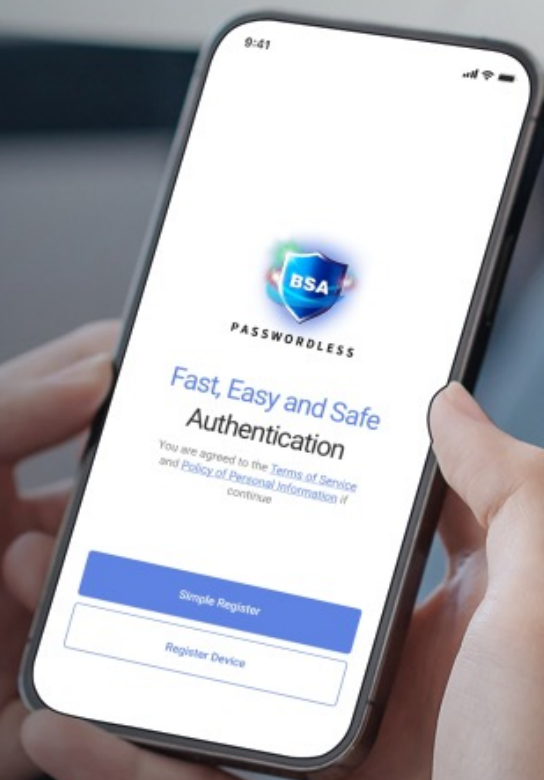


# BSA

Blockchain Secure Authentication

“Secure, Fast, Convenient  
Passwordless secure authentication solution  
blockchain-based verification”



# Key personnels



## Jeon SeungJu

CEO & Chairman, FNSValue Co., Ltd

- LG CNS Architecture
- SCJP Certification
- OCP BDA Certification
- Bachelor's degree in Computer Science from Hankuk University of Foreign Studies.
- CEO, FNSVALUE Co., Ltd.
- CEO, FNS (M) SDN. BHD
- Information Management Technical Qualifications
- Adjunct Professor at Sahmyook Health University



## Sungchoon Ryoo

Executive Director Global Business

- Vice President, Mirae Asset Securities.Co., Ltd.
- University of Michigan, USA – MBA
- Yonsei University, ROK
- Bachelor's degree in Economics



## Hannah Chang

Chief Communications Officer

- Deloitte Korea, Executive Director of Brand & Comm.
- Deloitte AP WorldImpact Council member
- The JoongAng Ilbo, Staff Writer
- The Korea Economic Daily, Senior Staff Writer
- University of California, Los Angeles
- Certificate in General Business & Advertising
- Busan National University, ROK
- Bachelor's degree in Mass Communication

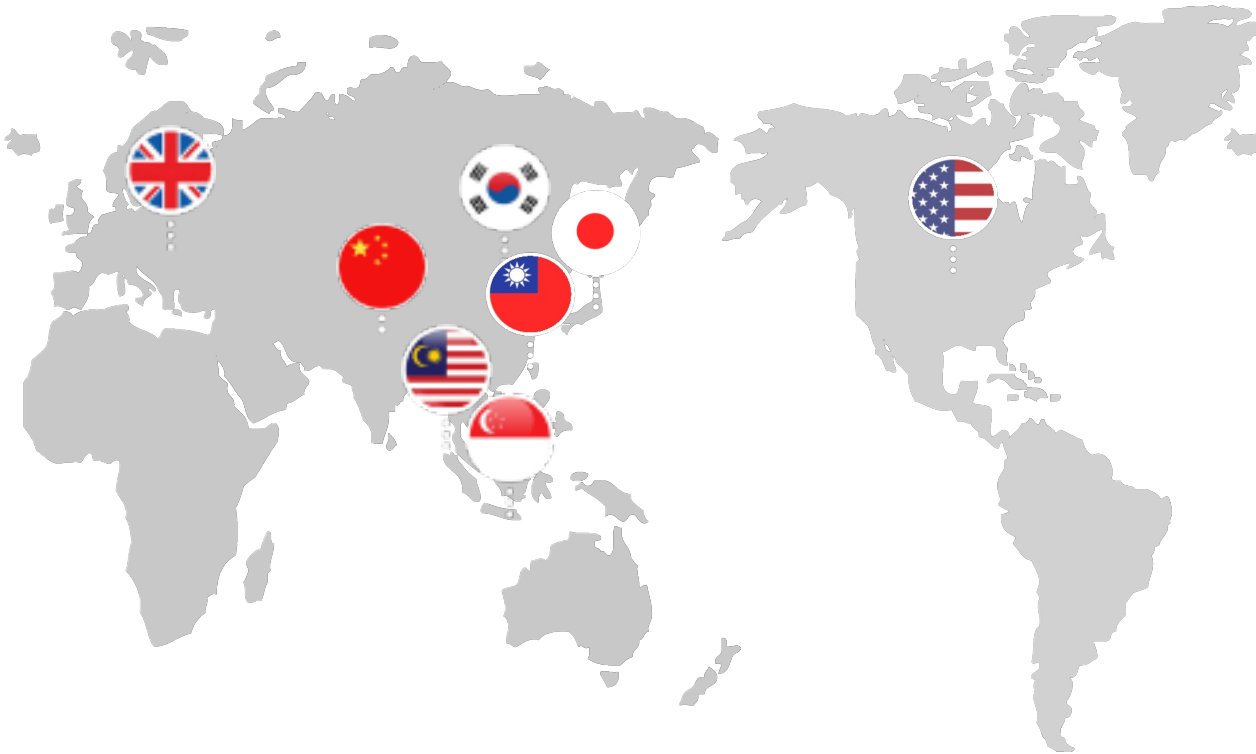


## Radhilufti Madehi

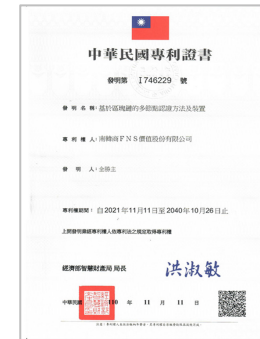
Chief Operating Officer

- Over 20 years of experience in IT
- Malaysia TM Berhad Cyber Security Division General Manager
- PricewaterhouseCoopers (PwC)

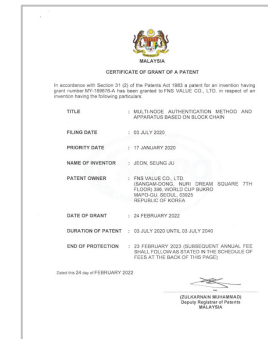
# BSA Technology Patent Registration (8 Countries)



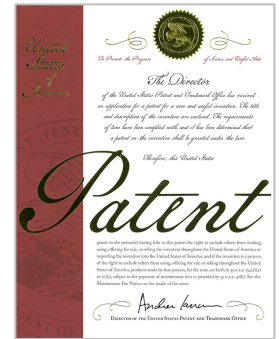
Rep. of Korea



Taiwan



Malaysia



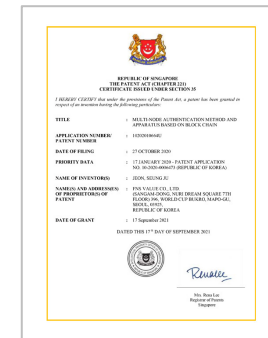
USA



China



Japan



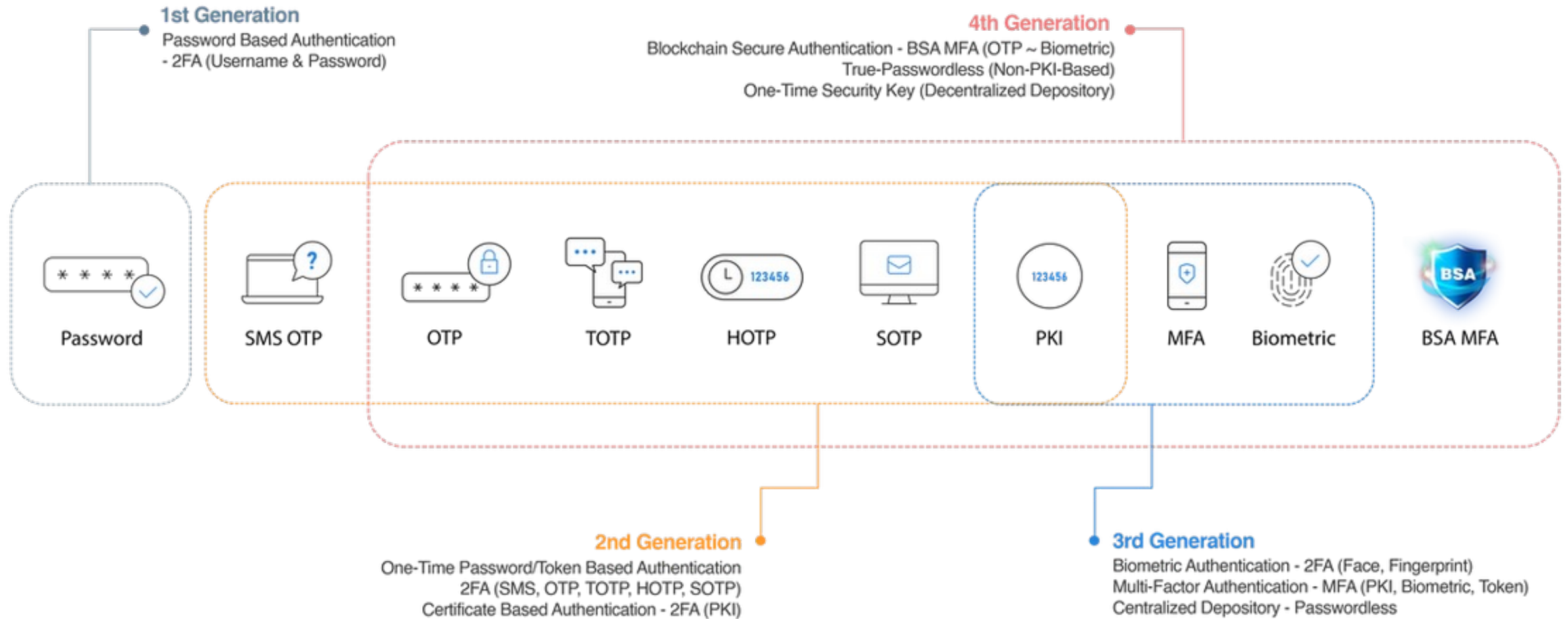
Singapore



United Kingdom



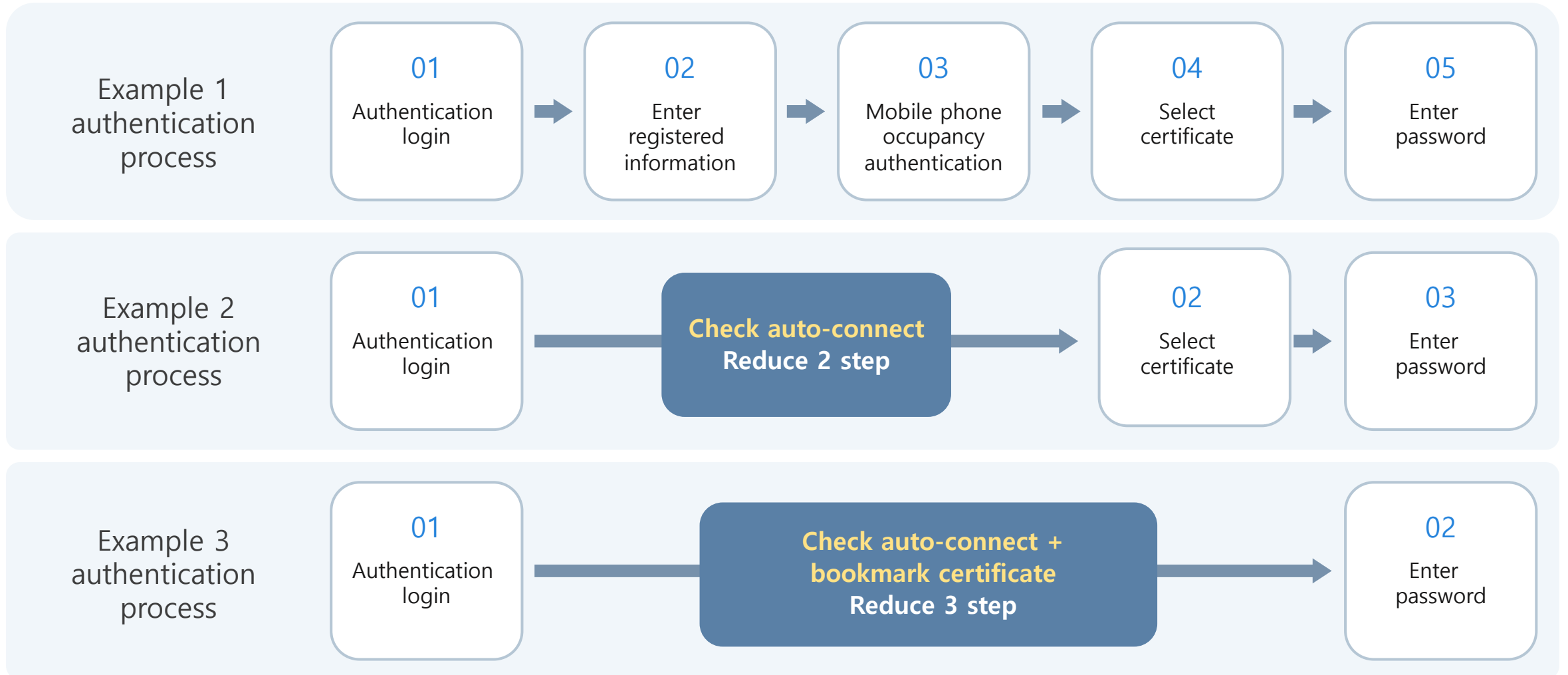
# Evolution of Authentication





# Conventional Authentication Process

Conventional authentication has a complex process while being safe, providing convenience can result in lower security



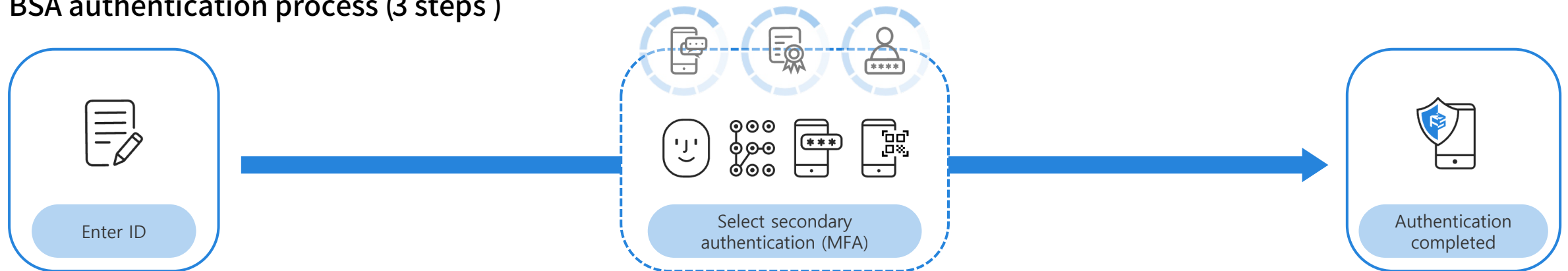
# Conventional vs BSA Authentication Process

Passwordless BSA provides simplicity & convenience through processing in the system, and it does not compromise safety and security

## Conventional authentication process ( 5 steps )

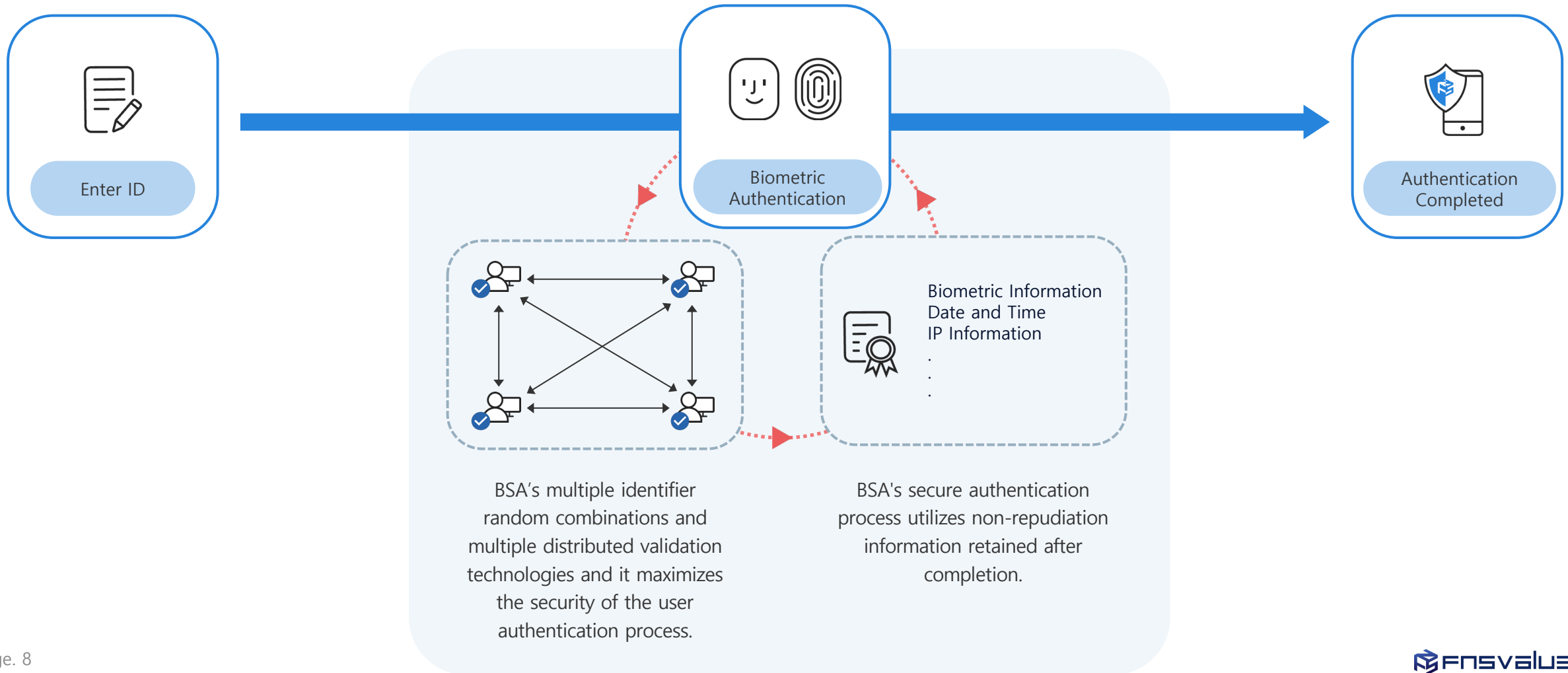


## BSA authentication process ( 3 steps )



# BSA Non-Repudiation Authentication Process

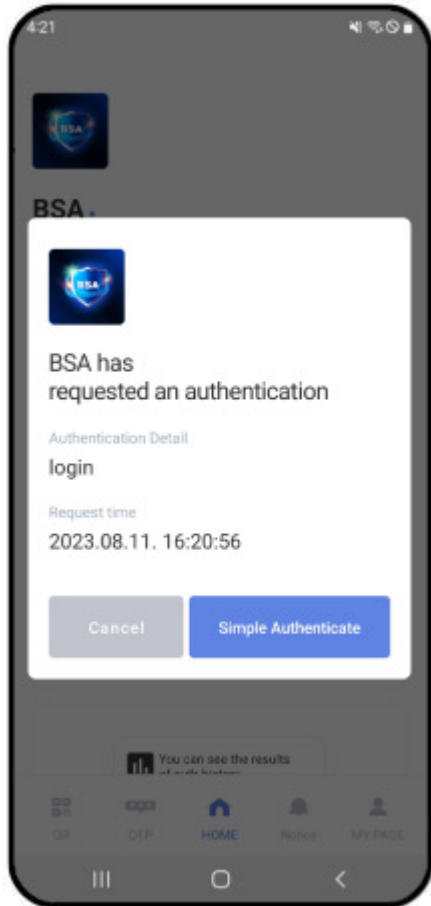
Non-Repudiation : Security technology that prevents denial of facts by proving the fact after sending or exchanging messages or after communication or processing is executed



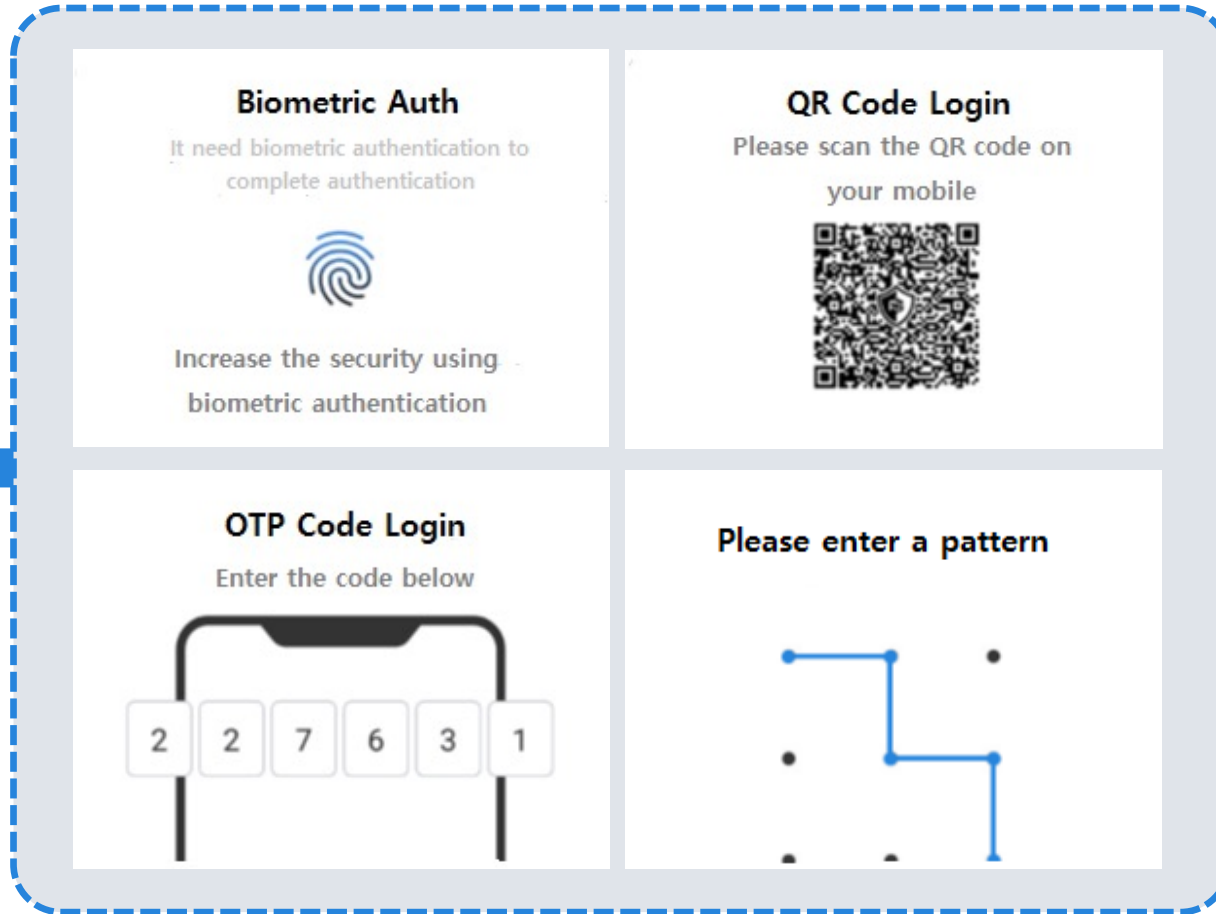


# BSA Authentication Process

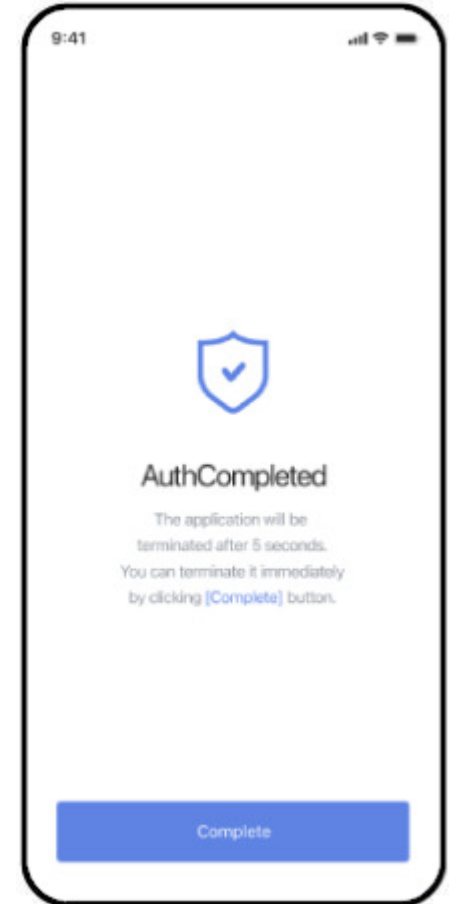
## 1 Authentication Request



## 2 Additional Authentication Options

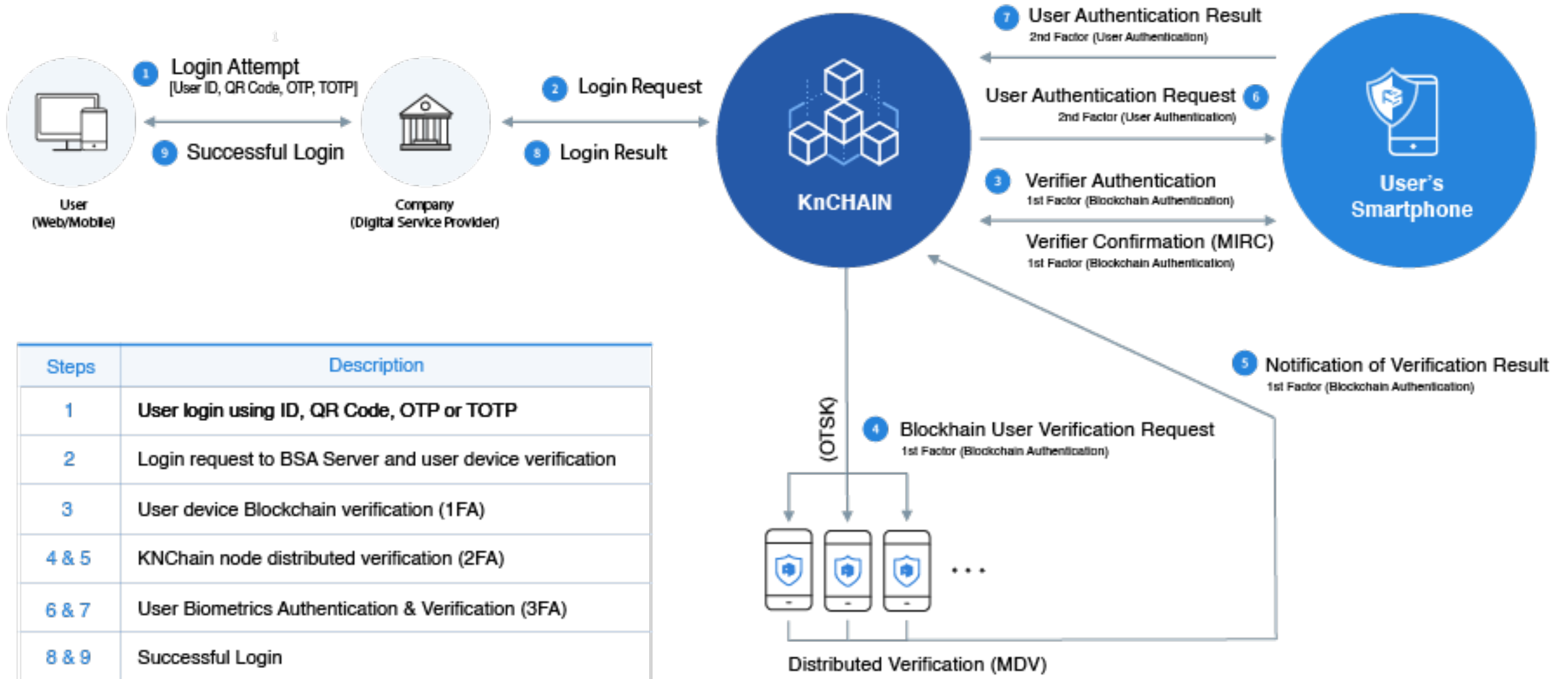


## 3 Authentication completed



NOTE: Enhancing both convenience and security with additional authentication options, including MFA, blockchain verification, and passwordless methods.

# BSA Authentication Process



# BSA's Core Technologies



## Multiple Identifier Random Combination (MIRC)

Extract multiple unique identifiers from users' mobile devices to create unhackable unique key.



## One Time Security Key (OTSK)

BSA used one time security key for blockchain for blockchain channel, block and instances to eliminate a single point of forgery during authentication process. OTSK is 100% volatile and unhackable.



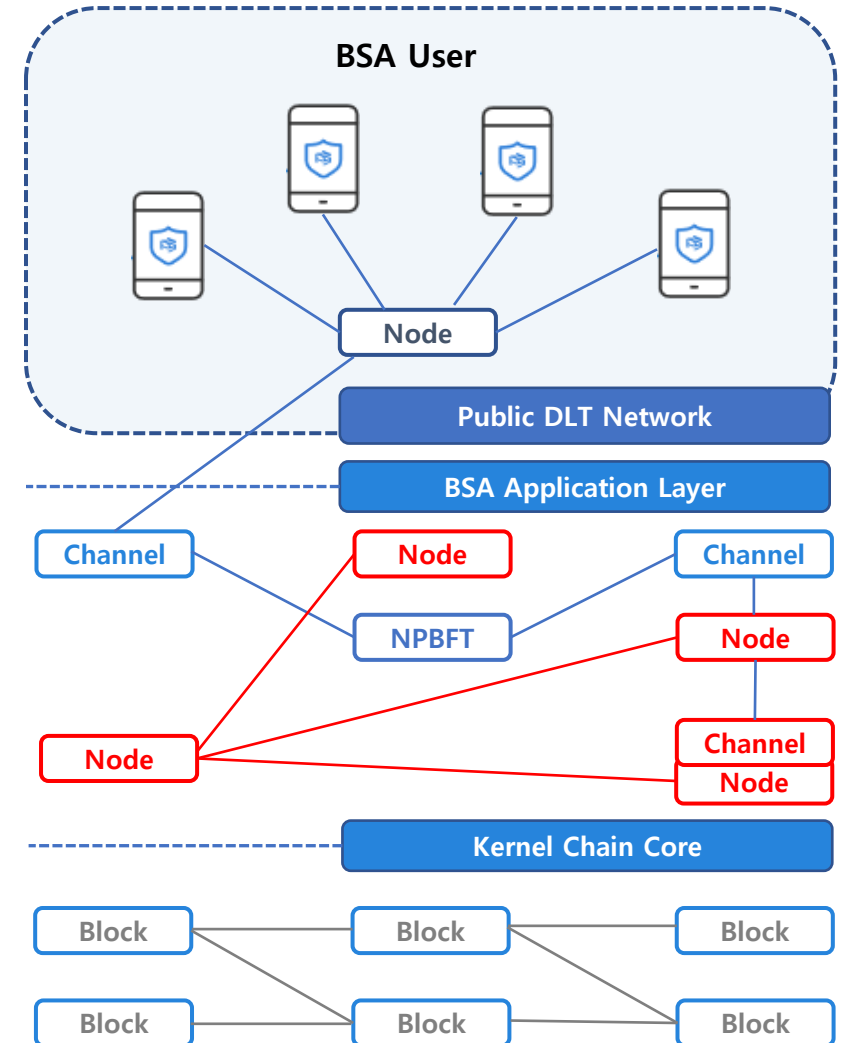
## Multiple Distributed Validation (MDV)

BSA implemented multilateral distributed verification technology based on its Kernel chain which is unique to maximize security level



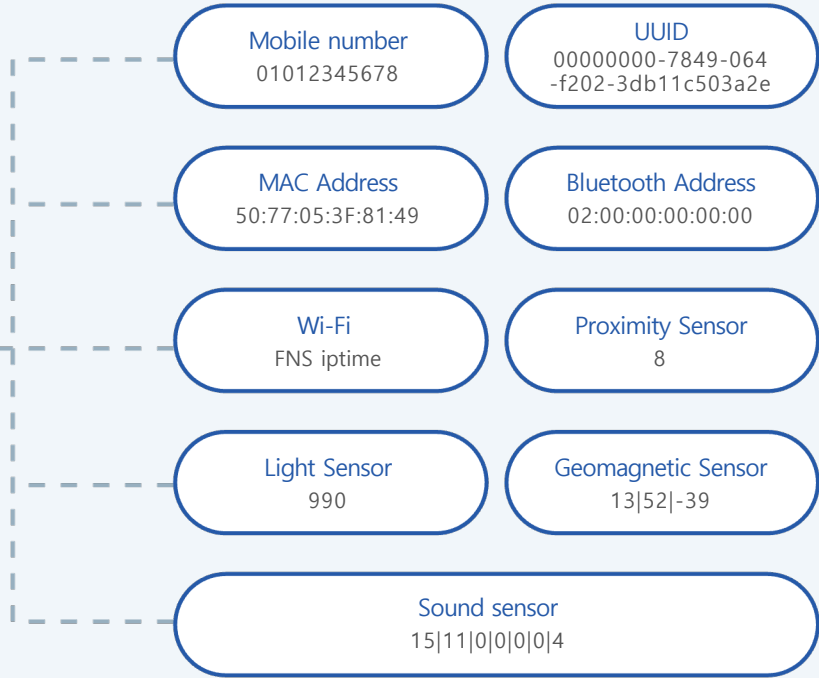
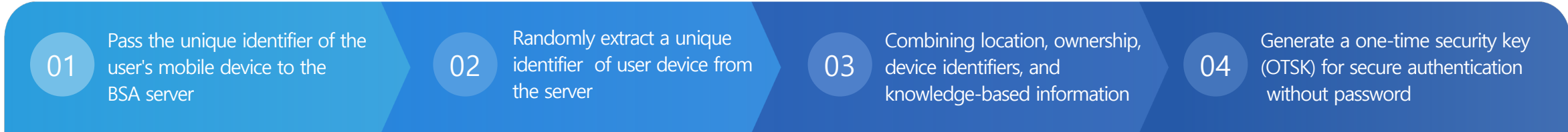
## Kernel Chain Core

New global authentication ecosystem for individuals and corporation. Fast, easy, and strong security authentication service. Hybrid blockchain service independent technology



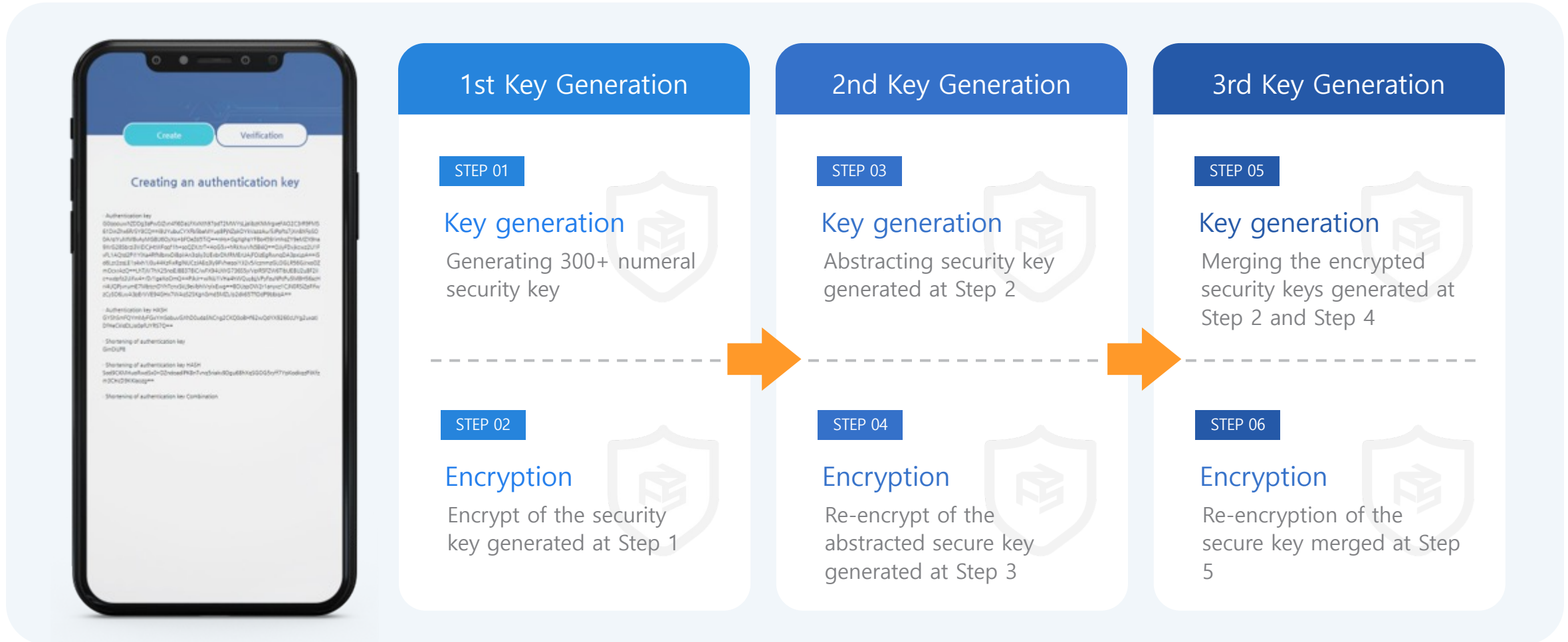
# Multiple Identifier Random Combination (MIRC)

Extract multiple unique identifiers from users' mobile devices to create unhackable unique key.



# One Time Security Key (OTSK)

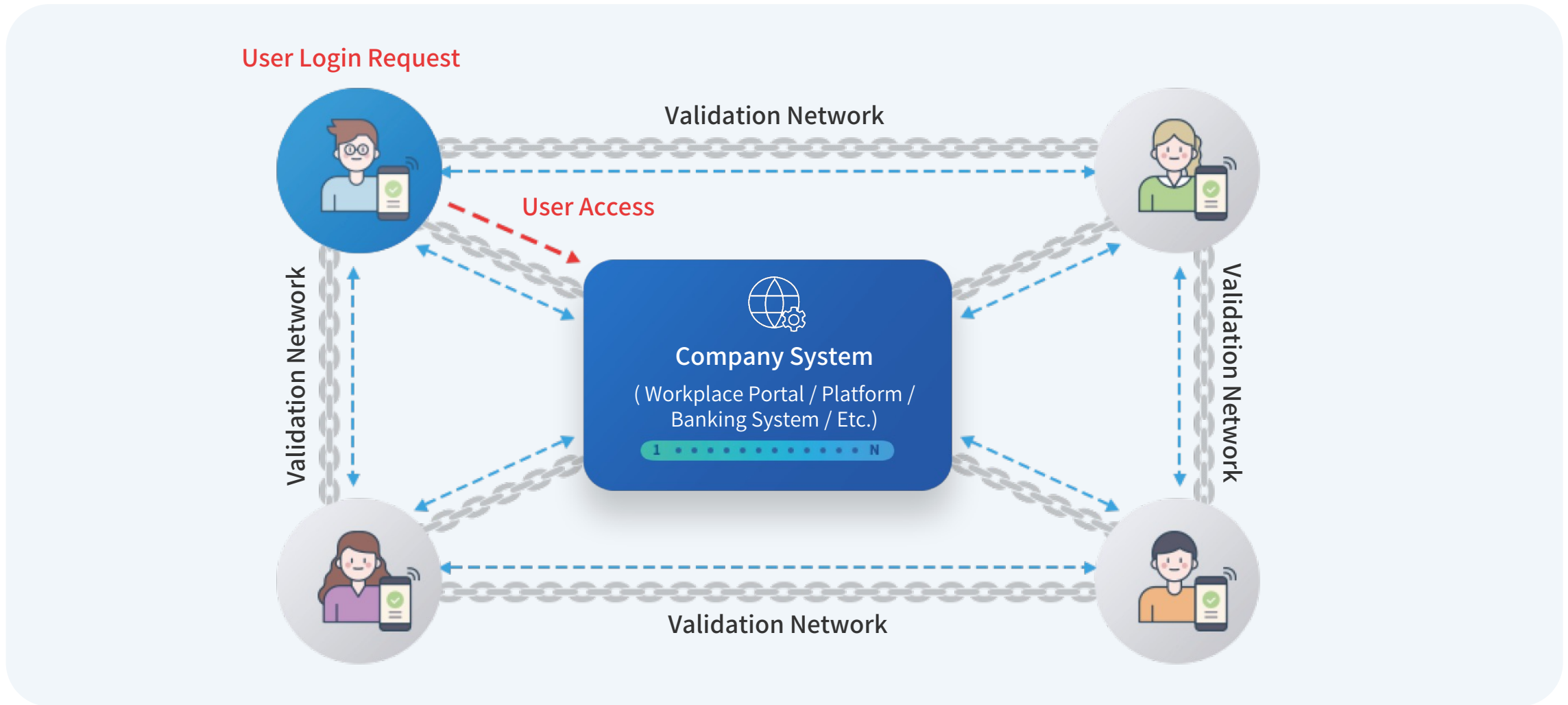
BSA used one time security key for blockchain for blockchain channel, block and instances to eliminate a single point of forgery during authentication process. OTSK is 100% volatile and unhackable.





# Multiple Distributed Validation (MDV)

BSA applies multiple distributed verification technologies to its own KNChain to maximize security levels

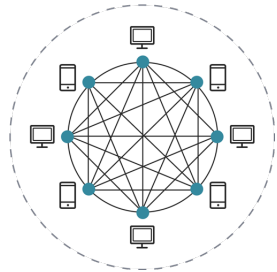


# Hybrid Blockchain – Kernel Chain

New global authentication ecosystem for individuals and corporation. **Fast, easy, and strong** secure authentication service.

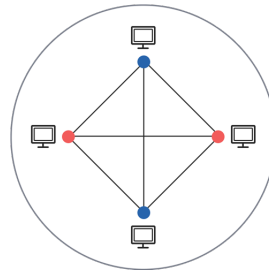
Hybrid blockchain service independent technology

## Public Blockchain



- Network configuration in the form of voluntary and unrestricted participation.
- Open blockchain (public blockchain).
- Individual devices such as computers and mobile phones that participate in the network are called nodes.
- Free participation and open technology to all user.

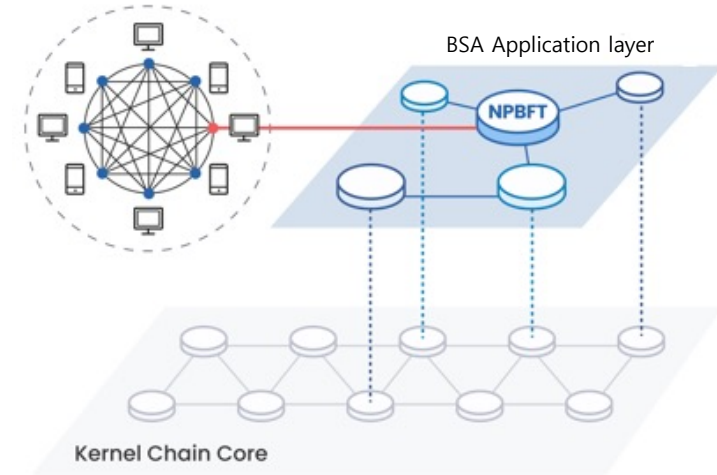
## Private Blockchain



- Network configuration with restricted access limited which allowed only designated user to participate
- Mainly used by banks and public institutions
- It operates with a limited number of nodes, allowing only authorized users to participate as nodes, unlike public blockchains.
- A Private Blockchain is integrated into the core authentication processing area of a Public Blockchain to enhance security in the authentication processing domain.



## Hybrid Blockchain



- ✓ Network configured to maximize advantages of public and private blockchain
- ✓ Provides key features such as security, immutability, transparency, and decentralization
- ✓ User anonymity is limited, but public anonymity is maintained, so no one outside the network knows the blockchain user

# Benefits of BSA Authentication

BSA level  
Financial Certification level



## Safety (top-level)

Ensuring the same security level as financial authentication. (However, in the case of financial authentication, it is less secure when using conventional authentication.)

100%

"Ensuring the same level of security as financial authentication, as validated by the Financial Security Institute, Rep. of Korea (2022.11.30)



## Estimated time

Less time required by a one-fourth compared to financial authentication. (Implementation of process automation in 3 out of 5 steps)

25%

Reduce the time required by conducting a total of five stages of the Financial Telecommunications & Clearings Institute in two stages



## Computation costs

Reducing infrastructure costs through simplified integration processes.

60%

Reduce computational infrastructure costs by implementing traditional non-storage methods.



## Management costs

Simplify the process to reduce indirect costs, such as customer inconvenience in response.

65%

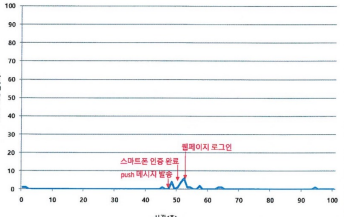
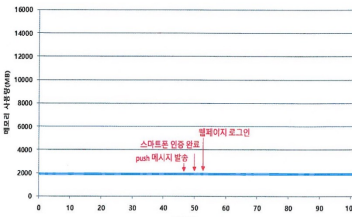
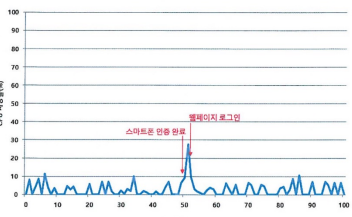
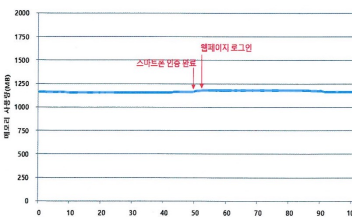


Savings in management costs related to customer inconvenience responses required for reissuances, such as password loss or change.



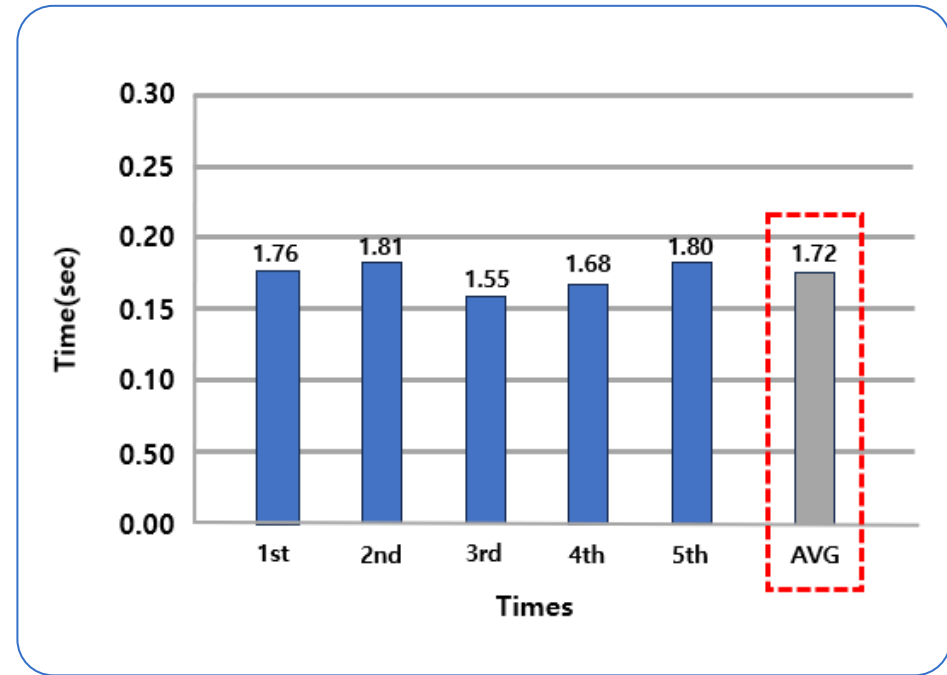


# BSA GS Authentication (Grade 1) Summary

Performance scenario: Measurements of CPU usage, memory usage, and response time of servers, clients, and smartphones from the time of smartphone authentication to the completion of web page login

<h3>Server – CPU Utilization</h3>  <ol style="list-style-type: none"> <li>1. Push message sent</li> <li>2. Smartphone authentication completed</li> <li>3. Webpage login</li> </ol>	<h3>Server – Memory Utilization</h3>  <ol style="list-style-type: none"> <li>1. Push message sent</li> <li>2. Smartphone authentication completed</li> <li>3. Webpage login</li> </ol>
<h3>Client – CPU Utilization</h3>  <ol style="list-style-type: none"> <li>1. Smartphone authentication completed</li> <li>2. Webpage login</li> </ol>	<h3>Client – Memory usage</h3>  <ol style="list-style-type: none"> <li>1. Smartphone authentication completed</li> <li>2. Webpage login</li> </ol>
<h3>Smartphone – CPU Utilization</h3>  <ol style="list-style-type: none"> <li>1. Push message sent</li> <li>2. Smartphone authentication completed</li> <li>3. Webpage login</li> </ol>	<h3>Smartphone – Memory usage</h3>  <ol style="list-style-type: none"> <li>1. Push message sent</li> <li>2. Smartphone authentication completed</li> <li>3. Webpage login</li> </ol>

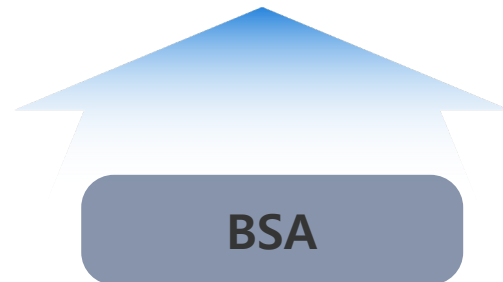
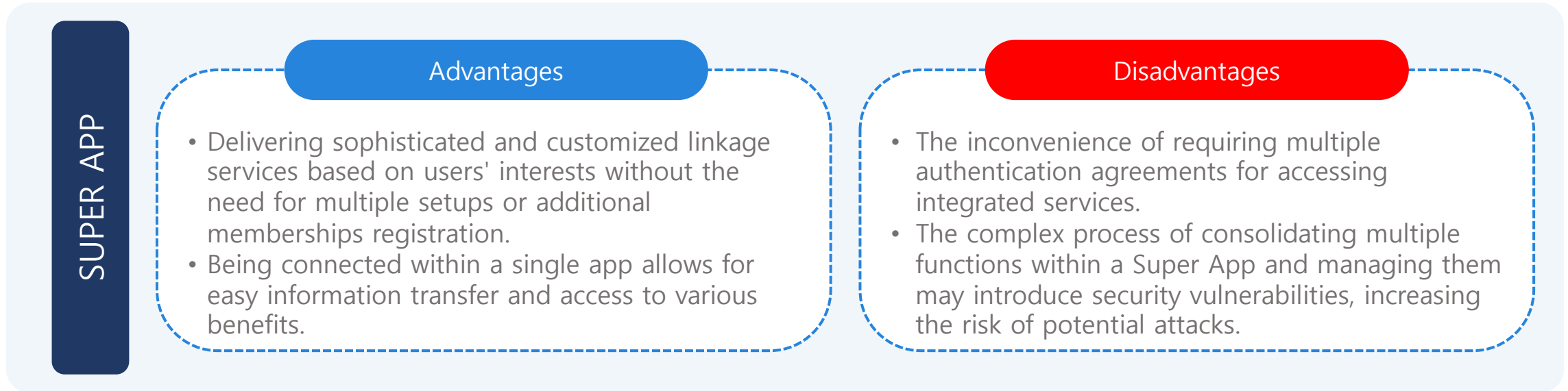
## Response time



Origin - TTA SW Testing and Certification Laboratory  
Test results TGS-B-18-085-GR

# BSA addresses Super App's Common Challenges

※ Super App: Providing various services such as payment, message delivery and social media in one app



**BSA**



- Eliminate the hassle of multiple authentication agreements by consolidating multiple services into one and increase security with a single authentication.
- Improve UI/UX with integration on existing systems for user convenience and maximum security



# Comparison of user information management methods

Existing



## Saved User Information

- User information stored is susceptible to hacking attacks.
- Difficulty managing passwords.
- Increased maintenance costs.

VS

BSA



## User Information **Not Saved**

- Deleted after generating a one-time security key based on blockchain verification.
- Prevents hacking of user information
- Reduces maintenance costs.

# BSA's Current Opportunities

## “OIC-CERT GLOBAL CYBERSECURITY AWARD Prize Winner”

- OIC-CERT GLOBAL CYBERSECURITY AWARD is an award recognized by governments, businesses, institutions, and others in 57 countries. In 2021, the company jointly won the grand prize with China's Huawei.
- The Abu Dhabi Investment Promotion Agency is discussing the establishment of VCs in the UAE, led by building up relations with OIC.
- Signed a strategic partnership with ITK.Swiss, a Swiss quantum cryptography technology company.



OIC-CERT GLOBAL CYBERSECURITY AWARD 2021

“Strategic partnership with ITK.Swiss, a Swiss quantum cryptography technology company. Jointly exploring regional markets such as Europe”



Signing Ceremony in Geneva, Switzerland

# BSA's Current Opportunities

International standardization of BSA technology at ITU SG17 (February 2023)



BSA authentication Sandbox with ITU DFS (Digital Financial Security) Lab to provide guidance to regulators in emerging economies to adopt the security recommendations for digital financial services and mobile payment infrastructures

## ▼ FNSV's 'International Standardization' challenge for BSA

### 에프엔에스벨류, 글로벌 '출사표' 던졌다

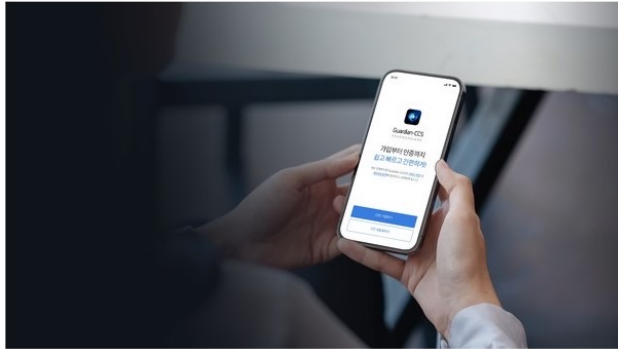
『제네바 ITU 스타디그룸(SG17)서 솔루션 기술 발표...』내년 초 완료 목표

최진홍 기자 | © 입력 2023.02.18 06:10

에프엔에스벨류가 블록체인 검증기반 패스워드리스(Passwordless) 보안인증 솔루션 기술을 바탕으로 글로벌 시장 출사표를 던졌다.

이달 20일부터 내달 3일까지 스위스 제네바에서 개최되는 ITU(International Telecommunication Union;국제전기통신연합) 회의에서 보안인증 솔루션(Guardian-CCS) 기술을 발표하며 세계 표준화(International Standardization)에 도전한다고 18일 밝혔다.

에프엔에스벨류는 블록체인 검증기반 패스워드리스 보안인증 솔루션 기업이다. 2020년 말레이시아의 최대 국영 통신그룹인 텔레콤 말레이시아(Telekom Malaysia)의 솔루션 구매 등을 전담하는 TM ONE과 솔루션 관련 말레이시아 내 공급 및 판매 독점 계약을 체결한 후 말레이시아 국영 에너지기업인 페트로나스(PETRONAS) 및 인도네시아 통신기업인 PT VADS 등에 솔루션을 제공하는 곳으로 잘 알려져 있다.



Economic Review Magazine(18 Feb, 2023)

## ▼ Hacking free for Super Apps by blockchain based security authentication

매일경제 2023년 5월 9일 화요일
보안 솔루션·IT
MK TECH REVIEW C5

### “슈퍼앱 시대, 해킹 걱정없는 블록체인 보안 더 중요”

**에프엔에스벨류 전승주 대표**

IBM은 2005년부터 매년 '데이터 유출 비용 연구 보고서'를 발표하고 있다. 지난해에는 전 세계 550개 기업을 대상으로 데이터 유출에 따른 피해 규모를 조사했는데 기업당 평균 손실액이 43만 달러(약 58억3300만원)에 달한 것으로 집계됐다. 나아가 데이터 유출 사고로 인한 건강 피해 금액이 가장 큰 분야는 금융, 서비스, 정보기술(IT) 등 순으로 나타났다.

작년 한국 기업의 평균 손실은 43억 400만원을 기록했다. IBM이 지난 17년 동안 조사가 진행된 이래 최대 피해액이다. 특히 우리나라의 경우 데이터 유출 사고의 20%가 '사용자 인증 정보 도난'이 원인으로 지목돼 주목을 끌었다.

“개인이나 기업이 설정한 비밀번호 노출되며 사고로 이어지는 사례에 속다. 이와 관련해서 시장조사기관 FMI는 '정규 비밀번호를 출처 보안을 위해 중요 시스템에 접근하거나 계정을 탈취하려는 시도가 늘어나고 있다'며 '보밀과 편의성을 제고할 수 있도록 사용자 직접 비밀번호를 입력하지 않는 새로운 인증 방식이 조명을 받고 있다'고 밝혔다.

FMI에 따르면 '비밀번호 없는 인증'은 지난해 134억5040만달러(약 5조)에서 2022년 556억7940만달러(74조7000억원)로 커질 전망이다.

블록체인 보안인증 전문기업 에프엔에스벨류(FNS VALUE) 전승주 대표는 “요즘같이 하나의 애플리케이션(앱)으로 금융과 비금융 서비스를 아우르는 슈퍼 앱 시대에서 보안은 전통 뱅킹(은행)과 핀테크 분야 모두에 ‘양날의 검’과 같다”며 “편지의 경우 너무 높은 규제가 혁신적인 보안 신기술을 빠르게 받아들이지 못하는 장애가 되고, 후자는 전통 뱅킹에 비해 보안이 취약하다는 소비자 인식이 걸림돌이 되고 있다”고 지적했다. 그러면서 그는 “금융 분야에서 보안에 관한 한 안전성이 보장된다면 혁신적인 신기술을 도입할 필요가 있다”고 말했다. 전 대표는 컴퓨터공학을 전공한 엔지니어 출신으로 2012년 에프엔에스벨류를 창업했다. 아하는 그와의 일문일답.

—회사에 대해 소개해주세요.

▶사업의 시작은 SI(시스템통합)와 컨설팅이었다. 정부 발주 IT 용역 사업을 꾸준히 진행하면서 역량을 쌓아왔고, 그 과정에서 조달청 우수제품 인증도 받았다. 2018년 블록체인 검증 기반 보안인증 솔루션인 BSA(Blockchain Secure Authentication)를 개발했다. 이 시점부터 SI를 넘어 보안 솔루션 분야로 사업 외연을 확장했다. 처음부터 글로벌 시장 진출을 목표로 삼았다. 2020년 말레이시아 지사를 설립한 뒤 현지 국영 통신사인 텔레콤 말레이시아와 전략적 파트너십을 맺었다. 이후 말레이시아를 기반으로 인도네시아, 싱가포르 등 동남아시아 시장 활로를 빠르게 개척하고 있다. 말레이시아 국영 에너지기업인 페트로나스(Petronas)와 인도네시아 통신사인 'PT VADS' 등에 보안 솔루션을 제공하고 있다.

—한마디로 블록체인 검증 기반 보안인증 솔루션이 가장 높은 금융인증과 같은 수준이다. BSA는 IT 제품이나 정보 시스템에 대한 국제 정보보안평가 인증인 CC(인증)를 받았고, CC인증은 국가나 공공기관에서 정보보호제품을 도입할 때 필수적으로 요구된다. BSA는 '패스워드리스(passwordless)', 즉 비밀번호를 설정할 필요가 없다. 기업을 포함해 사용 단계 전 과정에서 계정 탈취의 주요 원인이 되는 비밀번호를 없앤 것이 특징이다. 한국과 영국, 미국, 일본, 중국, 싱가포르, 대만, 말레이시아, 인도네시아 등 8개국에서 기술특허를 얻었다.

—핀테크 보안시장에 주력하고 있는데, 온라인 쇼핑, 호텔 예약, 금융 결제 등 다양한 서비스가 하나의 앱에서 실행되는 '슈퍼 앱'은 플랫폼 비즈니스에서 거대한 트렌드로 자리 잡았다. 슈퍼 앱에 대한 국제 정보보안평가 인증인 CC 인증을 받기 위해서는 사용자 본인확인 및 결제, 개인정보 관리 등을 제공해야 하는 등 핀테크 보안 솔루션 기술이 뒷받침되어야

전승주 에프엔에스벨류 대표가 자사 블록체인 검증 기반 패스워드리스 보안인증 솔루션을 모바일을 통해 시연하고 있다. 이송환 기자

한다. 사용자가 서비스를 이용하면서 편리하게 본인인증과 결제를 할 수 있어야 하는 것은 물론 해킹 사고로부터도 안전성이 보장되어야 하기 때문이다.

—국내에서 BSA 상용화 정도는.

▶아직 걸음마 단계다. 우리나라는 핀테크를 둘러싼 규제 강도가 비교적 강하기 때문에 금융회사들이 신기술을 적극적으로 도입하는 데 주저하는 측면이 있다. 하지만 이용자 편의성 제고는 물론 서비스 안전성까지 보장된다면 신기술을 수용하는 데 있어서 보다 개방적인 입장을 취하는 것이 산업 발전에 도움이 된다고 생각한다. 그런 측면에서 지난달 금융위원회가 '핀테크 기업 글로벌 진출 활성화를 위한 현장간담회'를 개최하면서 국내 핀테크 기업들을 위한 지원 논의를 진행한 것은 의미가 있다.

—향후 목표는.

▶보안인증 솔루션인 BSA 기술의 세계 표준화가 목표다. 이를 위해 지난 2월 스위스 제네바에서 열린 ITU-T(국제전기통신연합 전기통신표준화부문) 회의에 참석해 관련 기술에 대한 발표를 진행했다. ITU-T는 국제정보통신 분야를 총괄하는 유엔 산하의 표준화 전문기구다. 8월에는 ITU-T DFS(Digital Financial Services) Lab과 협력계약을 맺고 신기술개발국가의 디지털 금융 서비스 선진화를 위한 연구개발(R&D)과 보안인증 관련 기술에 대한 표준화를 수행할 계획이다.

Maeil Business Newspaper (#1 Economic Newspaper in Korea 9 May, 2023)



# Media (Malaysia)

## ▼ MoC between FNSV and Telekom Malaysia



### TM ONE collaborates with Korea's FNSV for blockchain secure authentication solutions

By Digital News Asia January 22, 2020

- World's first patented solution based on blockchain that does not require a password
- Solution is very user friendly and has been proven until now, impossible to penetrate



(From left) FNSV MD Kim Eun Mi; FNSV CEO Jeon Seung-Ju; TM group CEO Noor Kamarul Anuar Nuruddin; and TM ONE executive VP and CEO Ahmad Taufek Omar signing the Memorandum of Collaboration.

TM ONE, the enterprise and public sector business solutions arm of Telekom Malaysia Bhd (TM) and FNS Value Co, Limited (FNSV) of Korea on Jan 21 signed a Memorandum of Collaboration (MoC) for the appointment of TM ONE as the sole distributor of FNSV Blockchain Secure Authentication (BSA) products and solutions for Malaysia and as the strategic partner for Asean.

FNSV offers the world's first patented solution based on blockchain technology that does not require a password for authentication, is simple to use, extremely secure. This almost impenetrable solution represents the next step in securing online businesses.

The MoC was signed by TM ONE executive vice president / chief executive officer Ahmad Taufek Omar, while FNSV was represented by managing director Kim Eun Mi. The signing ceremony was witnessed TM group chief executive officer Noor Kamarul Anuar Nuruddin and FNSV chief executive officer Jeon Seung-Ju.

Digital News Asia (22 Jan, 2020)

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## TM One bekerjasama dengan FNSV bagi penyelesaian pengesahan selamat blockchain

By Editor · 21/01/2020 · 954 · 0

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10 kematian, 2,148 kes baharu, tertinggi dalam lebih sebulan

Afghanistan: Biden gesa henti 'perang paling lama' Amerika

KKM cadang tangguh rentas negeri Aidilfitri, kata Adham

Pukul 'bodyguard' berpuasa: Polis rampas 100 kg jongkong emas, wang kertas RM28.25 juta

Tanpa amanah, integriti penjawat awam tetap lakukan rasuah

'Kami sudah menang perang, Amerika kalah', kata Taliban

Boleh raih RM25,000 tanam nenas Moris secara sambilan

**TRENDING**

The man who designed the (haramain) Mekkah and Madinah mosques

Dari iklan 'maevi' Aiman jadi kanak-kanak autisme

Guan Eng, suliah diri sendiri dulu...

Filem Penunggang Agama penuh pengajaran

**LANGKAWI** — TM ONE, cabang penyelesaian perniagaan sektor perusahaan dan awam Telekom Malaysia Bhd (TM), dan FNS Value Co Limited (FNSV) dari Korea hari ini menandatangani Memorandum Kerjasama (MoC) untuk melantik TM ONE sebagai pengedar tunggal produk dan penyelesaian Pengesahan Selamat Blockchain (BSA) FNSV untuk Malaysia dan sebagai rakan strategik untuk rantau ASEAN.

FNSV menawarkan penyelesaian pertama yang dipatenkan di dunia berdasarkan teknologi blockchain yang tidak memerlukan kata laluan untuk pengesahan, mudah digunakan, amat selamat dan hampir tidak dapat ditembusi.

Di bawah kerjasama itu, TM ONE dan FNSV akan bekerjasama dalam pembangunan teknologi dan perniagaan untuk penyelesaian BSA berdasarkan Guardian-CCS 1.0 (G-CCS 1.0) FNSV bagi Malaysia, ASEAN dan pasaran lain yang berpotensi di web, mudah alih, Internet of Things, generasi kelima (5G) dan semua jenis pengesahan sederhana yang lain serta perkhidmatan pensijilan.

BEBAS News (21 Jan, 2020)

## ▼ Contract paper for MoC

**TM Applied Business**

23<sup>rd</sup> August 2019

Chief Executive Officer  
FNS Value Company Limited  
03925, (Sangam-Dong, Nuri Dream Square 7th Floor)  
World Cup North Road 396  
Mapo-gu, Seoul, Republic of Korea

(Attn: Mr. Seung Ju Jeon)

Dear Sir,

**RE: TM PARTNERSHIP WITH FNS VALUE COMPANY LIMITED**

Telekom Applied Business Sdn Bhd (TAB), a wholly-owned subsidiary of Telekom Malaysia Berhad (TM) is representing TM ONE for the collaboration and partnership with FNS Value Company Limited (FNS Value) to provide business solution of Systems Integration and Secure Authentication Solution based on block-chain technology or Guardian-CCS.

TM ONE and FNS Value shall discuss and explore the detail business arrangement of the partnership in providing block chain Secure Authentication (Guardian-CCS) Services for TM customers.

TM ONE also wish that an official signing ceremony between the two parties can be held in Korea during the signing ceremony of Malaysia Korea FTA and to be witnessed by Prime Minister of Malaysia and President of Korea.

We certainly look forward for the business partnership and collaboration works between the two parties.

Thank you and best regards,

Thaib Mustafa  
General Manager  
Telekom Applied Business Sdn Bhd  
Product & Solution, TM ONE.

Thaib Bin Mustafa  
General Manager  
Telekom Applied Business Sdn Bhd  
Product & Solution, TM ONE  
Telekom Malaysia Berhad (25786-0)

Telekom Applied Business Sdn Bhd (455343-U)  
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# Thank you

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<http://fnsmalaysia.com>

