

# FNSVALUE CO., LTD.

Blockchain Secure Authentication

A new paradigm of  
passwordless  
authentication system



# Problem Statement

The rise in asset losses from user account theft underscores the need for robust information security measures. However, increasing complexity in account security can also cause user inconvenience.

## Data Breaches Incident

## Current Account Security Measures for Information Protection

Company name	Incident Date	Incident Details
Verizon	24.02	Sensitive information, including Social Security numbers, of over 63,000 employees was stolen.
Bank of America	24.02	A ransomware attack on a software vendor led to the theft of personal information of 57,028 bank customers.
LoanDepot (Mortgage Company)	24.01	A ransomware attack resulted in data encryption and system access, leading to the theft of personal information of 16.6 million individuals.
Crypto.com	23.01	Hackers bypassed two-factor authentication, accessing user wallets and stealing approximately \$18 million in Bitcoin and \$15 million in Ethereum.
Paypal	23.01	A credential stuffing attack led to the theft of about 35,000 customers' information.
Twitter	22.01	Multiple hackers continuously exploited an exposed API vulnerability since 2021, stealing a database of over 200 million users.

- **Change the initially set default account**
  - Change to a 9-character minimum, making it difficult to guess
- **Passwords must include letters, numbers, and special characters**
  - Change at least once per quarter
- **Set appropriate permissions for each user account**
  - Delete unnecessary accounts, prohibit shared use of administrator accounts.
  - Limit the total number of failed login attempts to 5 for user accounts.
  - Block access from unauthorized IP addresses
  - Use Session Timeout setting
- **Set password policies**
  - "Maximum password length" to at least 9 characters, with a usage period of no more than 90 days

# Innovative Technology

BSA, the global standard technology, provides security and convenience through True Passwordless method.

"The safest, fastest, easiest, and most reliable authentication solution."



1) BSA : Passwordless Blockchain-based Secure Authentication  
 2) ITU : International Telecommunication Union

# Innovative Technology

BSA is recognized for its international standard technology and interpretation by relevant domestic authorities, offering safety, convenience, and cost savings.

## Convenience

- Passwordless one-stop authentication
- Ultra-fast authentication speed within 0.5 seconds
- User-friendly



## Security

- Hacking free with the use of one-time authentication key
- KOIST and TTA system performance testing completed

## Reliability

- Global standard technology
- Obtains authoritative interpretation from the MSIT and FSC
- CCRA (Obtained global level EAL2)

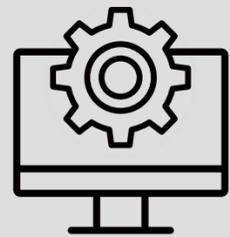


## Cost Savings

- Eliminates costs for password management
- Reduction in personnel costs

# Innovative Technology

Secure and convenient authentication with simple user operations



## DEVICE

The authentication process can only be performed by the device owner.

Multiple Identifier Random Combination **MIRC + OTAK** One Time Authentication Key



## COMMUNITY

Enhanced security with multiple distributed verification technology, preventing participation in the authentication process even if a one-time authentication key is stolen

**MDV** Multiple Distributed Validation



## USER

Combined with additional security with face ID, fingerprint recognition, etc., after BSA authentication

**Biometrics**

# Innovative Technology

Authentication based on possession devices that cannot be authenticated by third party : One-time authentication key are randomly generated during authentication and discarded after use, making them impossible to steal.

## 1. Multiple Identifier Random Combination

Generate a hack-proof key by extracting multiple unique identifiers from the entire blockchain



## 2. One Time Authentication Key (OTAK)

Eliminate tampering and forgery risks by using a one-time authentication key.

## 3. Multiple Distributed Verification (MDV)

Multi distributed validation to maximize security levels

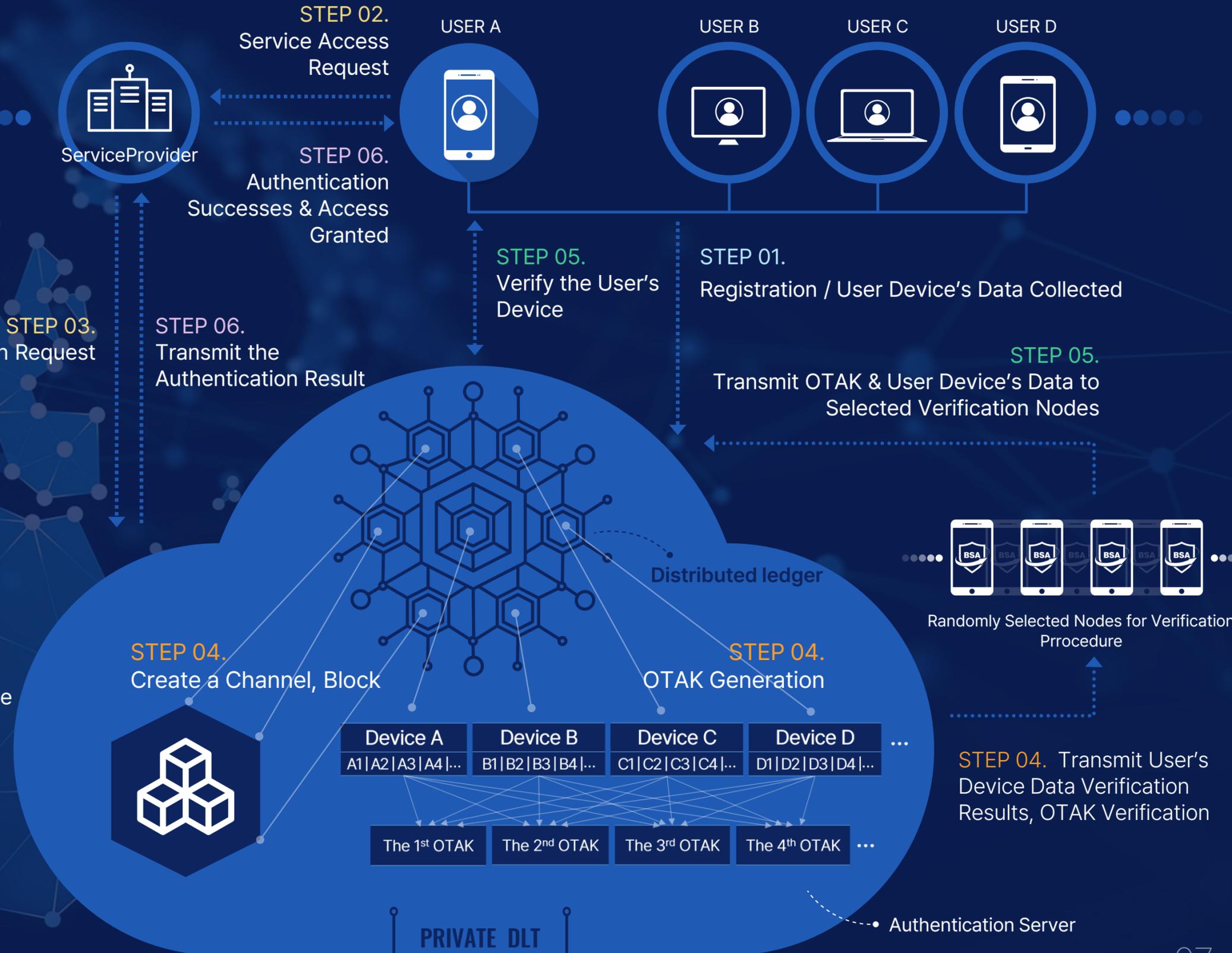
## 4. Kernel Chain Core

Combining the advantages of public and private chains to optimize reliability, performance, and security.

# Innovative Technology

Authentication based on possession devices that cannot be authenticated by third party : One-time authentication key are randomly generated during authentication and discarded after use, making them impossible to steal.

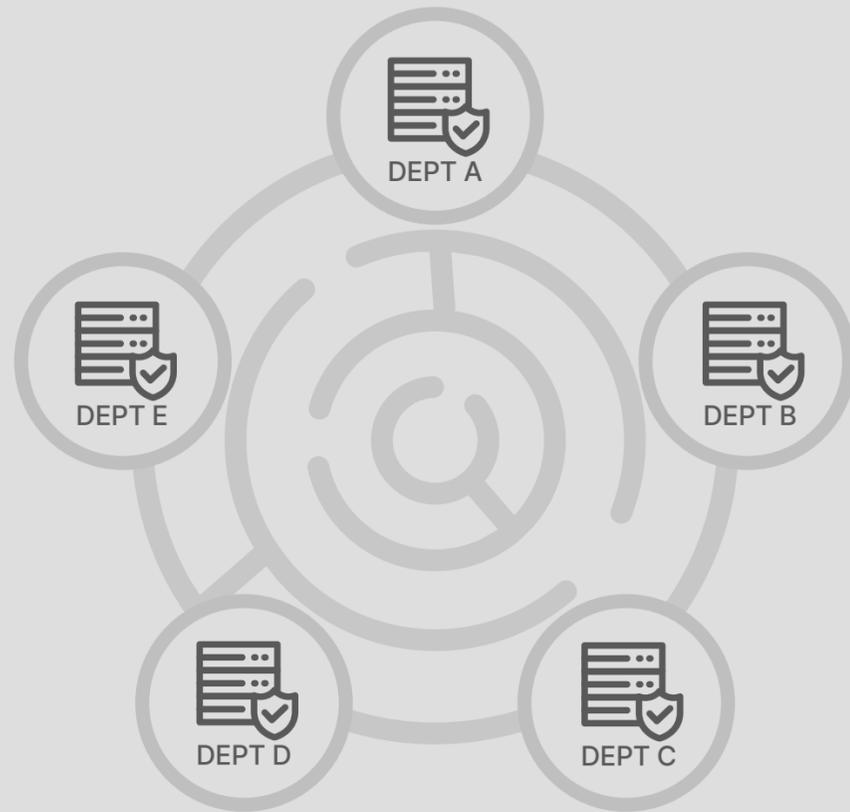
- STEP 01. Registration / User Device's Data Collected
- STEP 02. Service Access Request
- STEP 03. Authentication Request
- STEP 04. Create a Channel, Block
- STEP 04. OTAK Generation
- STEP 04. Verification Nodes Selection | Transmit User's Device Data Verification Results, OTAK Verification
- STEP 05. Transmit OTAK & User Device's Data to Selected Verification Nodes
- STEP 05. Verify the User's Device
- STEP 06. Transmit the Authentication Result
- STEP 06. Authentication Successes & Access Granted



# Innovative Technology

BSA can be expanded to share and access authentication factors from different service providers, enabling various types of companies to collaborate and operate jointly

## As-Is



As user numbers increase, the complexity, time and cost burdens of password changes and management also grow

## Challenges

### Objective

To enable Mutual Trust between users, devices and applications. Enable common interoperable with enterprise wide Authentication solution.

### Value

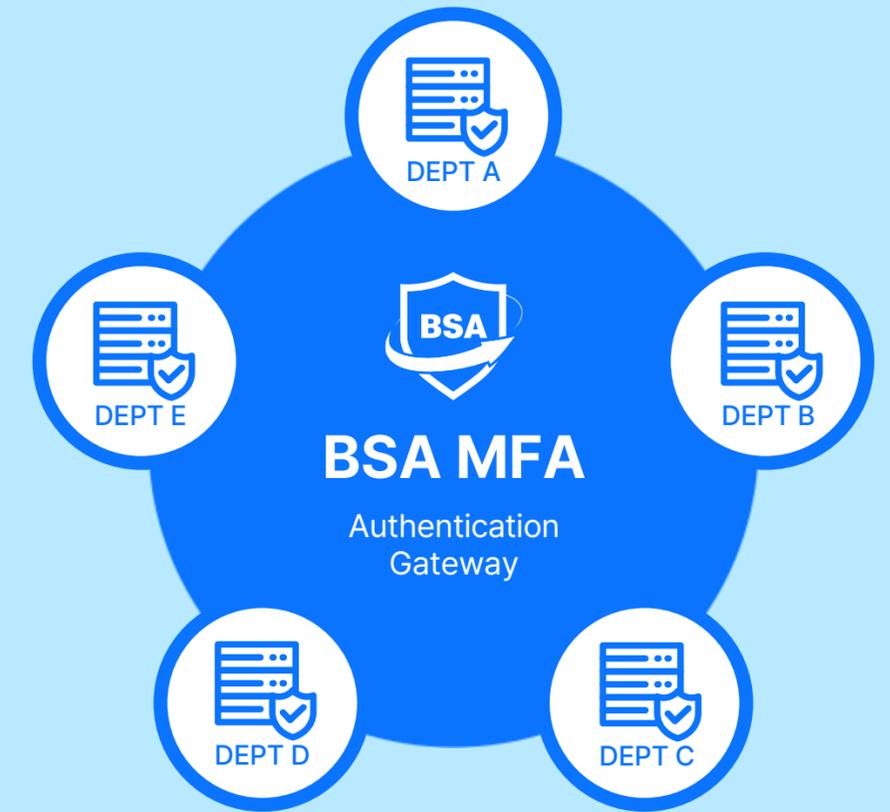
#### - User Value -

Trusted, consistent method of identity authentication to employee, customers and partners. Enable protection of confidentiality and sensitivity data.

#### - Organization Value -

Advanced authentication capability, reducing operating cost and increase productivity time of users within the organizations.

## To-Be



BSA standardizes and simplifies user authentication security policies for both user and device access, facilitating integrated service operations.

Comparison of Passkey (FIDO2) and BSA Features

# Comparison of FIDO Features

Public Key-Based Authentication Key Storage Method : Passkey (FIDO2) VS  
 Device-Based Authentication Key Non-Storage Method : BSA

**PASSKEY FIDO2**



**VS**



**BSA**

**AUTHENTICATION METHOD**

Public Key (PKI) Based Authentication<sup>1)</sup>

Device-Based Authentication<sup>2)</sup>

If a user's biometric information is leaked, it can be very difficult to change or recover.

Does not store authentication keys, effectively blocking phishing and man-in-the-middle attacks.

Replaces the traditional password-based authentication with biometrics. For re-registration, it uses the existing password for reissuance.

**SECURITY**

**PASSWORDUSAGE**

**BIOMETRICS**

Generates a one-time authentication key for each authentication and discards it upon completion. For re-registration, you'll need to register your device again.

Uses various biometric technologies such as fingerprint and facial recognition

Supports multi-factor authentication with various biometric technologies such as fingerprint and facial recognition

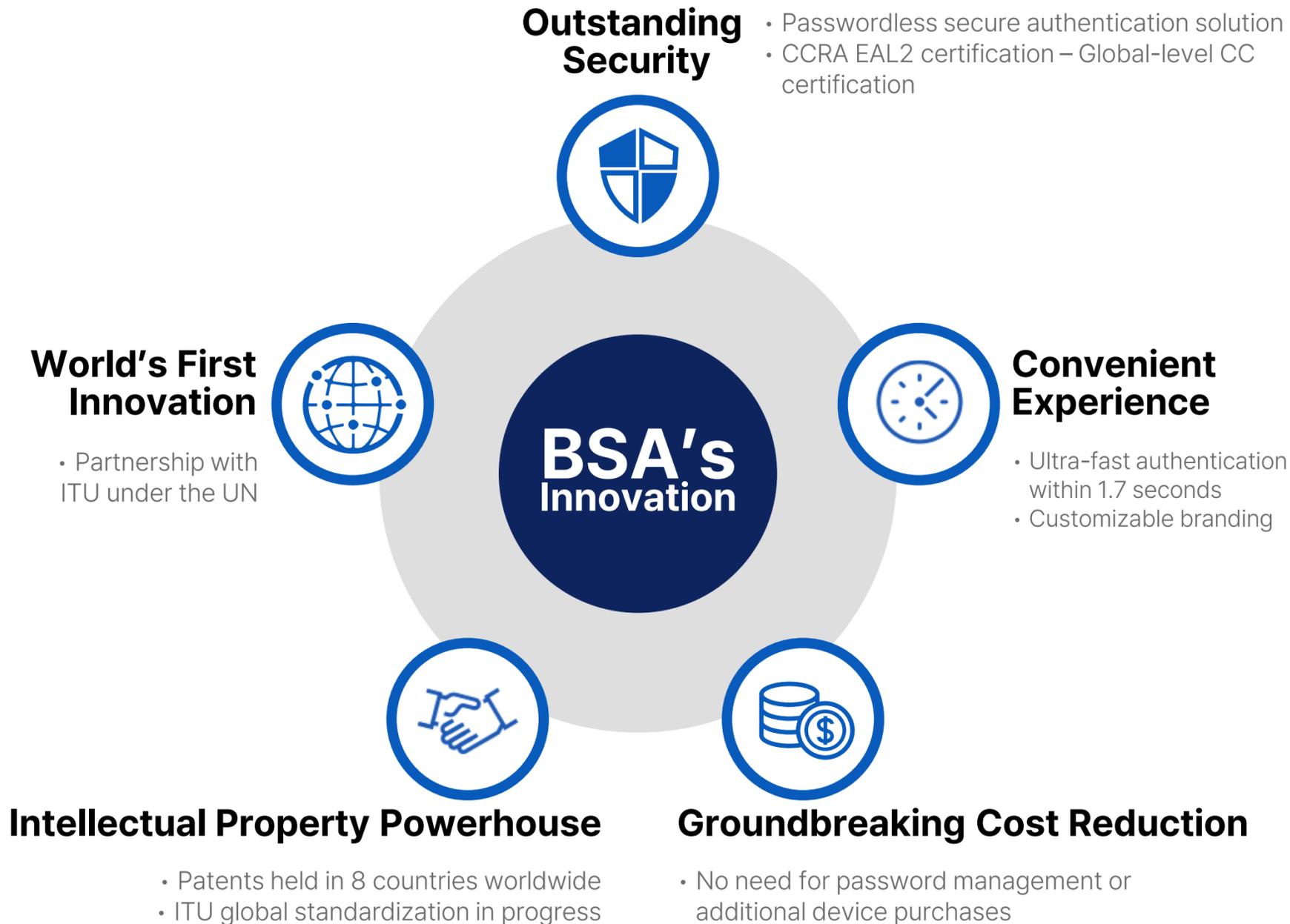
✓ 1) Public Key (PKI) Based Authentication : Authentication method using uniquely generated public keys from the user's device

✓ 2) Device-Based Authentication : Authentication method that identifies the user's device to grant access permissions

Reasons BSA is Gaining Attention in the Authentication Market

# Competitive Advantage

BSA's innovativeness has been recognized through partnerships with ITU, global standardization, and the worldwide BSA Application Challenge, leading to increased attention in the global authentication market.



## FNSV, ITU's Only Private Sector Partner Worldwide

Partnership established to enhance digital financial cybersecurity infrastructure in emerging countries, with sandbox in progress.

## BSA's Innovation

As the world's first blockchain-based passwordless authentication solution, BSA is undergoing global standardization with ITU.

## Testing through the BSA Application Challenge

Conducting BSA App Challenge with ITU, with participants from 39 countries worldwide testing BSA solutions.

# BSA Implementation Status

Detailed information on BSA solution application for each customer

## Detailed information on BSA solution application for each customer

Sector	Customer	Project	Details
Public	Sarawak Digital Economy Corporation Berhad (SDEC)	MyVMS	<ul style="list-style-type: none"> <li>• Vendor management system integrated with BSA</li> <li>• BSA as authenticator &amp; MFA</li> <li>• User : Employees</li> </ul>
	Inland Revenue Board of Malaysia (LHDN)	MYDATA+	<ul style="list-style-type: none"> <li>• Company background investigation system integrated with BSA</li> <li>• <sup>1)</sup> White label application</li> <li>• User : Employees (investigation division)</li> </ul>
Corporate & Enterprise	PETRONAS Dagangan Berhad (PDB)	Secured VPN access	<ul style="list-style-type: none"> <li>• Company background investigation system integrated with BSA</li> <li>• White label application</li> <li>• User : Employees and BDW's client</li> </ul>
	Landasan Network Solutions (LNS)	Secured VPN access	<ul style="list-style-type: none"> <li>• Mikrotik secured VPN access integrated with BSA</li> <li>• BSA as authenticator &amp; MFA</li> <li>• User : Employees</li> </ul>
	Big Dataworks (BDW)	MYDATA+	<ul style="list-style-type: none"> <li>• Company background investigation system integrated with BSA</li> <li>• White label application</li> <li>• User : Employees and BDW's client</li> </ul>
	Rakan Net	Secured VPN access	<ul style="list-style-type: none"> <li>• Mikrotik Secured VPN access integrated with BSA</li> <li>• BSA as authenticator &amp; MFA</li> <li>• User : Employees</li> </ul>

☑ 1) White Label : Refers to the practice of hiding the origin or brand of a product or service and offering it under a different brand. In the context of BSA, it means concealing the BSA trademark and instead creating and distributing applications under the client's brand.

# BSA Implementation Status

Detailed information on BSA solution application for each customer

## Detailed information on BSA solution application for each customer

Field	Partner	Customer	Project	Details
Corporate & Enterprise	Big Dataworks (BDW)	Government agencies & public users	MyDigital ID	<ul style="list-style-type: none"> <li>Developing framework on MyDigital ID platform. BSA compliments as the access security authenticator.</li> </ul>
	Heitech Padu	Government & corporate sectors	1) POC(Proof Of Concept)	<ul style="list-style-type: none"> <li>POC on Heitech Padu own system (managed service provider ecosystem)</li> </ul>
	Heitech Padu	Government & corporate sectors	POC(Proof Of Concept)	<ul style="list-style-type: none"> <li>BSA as one of security service offering for Heitech Padu's customers.</li> </ul>
Educativo	Koleksi Niaga (KN)	Mulawarman University (UNMUL)	POC(Proof Of Concept)	<ul style="list-style-type: none"> <li>SSO system integrated with BSA</li> <li>BSA as authenticator &amp; MFA</li> <li>Target user: Academician, students, and staffs</li> </ul>

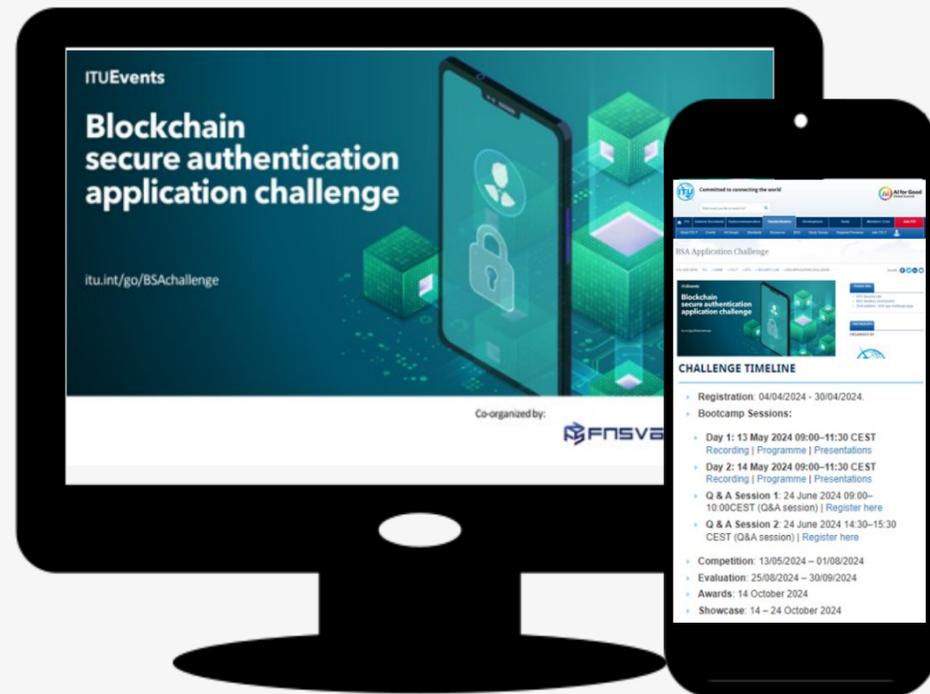
☑ 1) POC(Proof Of Concept) : The process of creating experimental implementations or prototypes to prove that an idea or technology actually works.

# BSA Implementation Status

With participants from 39 countries participating in the Worldwide BSA App Challenge co-hosted with ITU, expanding market penetration into emerging markets such as Asia and Africa.

## ITU BSA Application Challenge

## Distribution of Participating Countries - 39 countries participated



# Patents & Awards

Obtained global-level CCRA certification, OIC-CERT Global Cybersecurity Award, and holds technology patents for innovation in eight countries worldwide.



Cybersecurity Certification ISO/IEC 15408  
(CC Certification/Global Level)



Winner of the 2021 OIC-CERT Global Cybersecurity Award



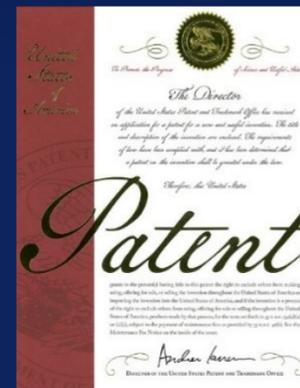
South Korea



Taiwan



Malaysia



United States



China



Japan



Singapore



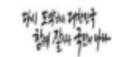
United Kingdom

# Interpretation by the Ministry of Science and ICT and the Financial Services Commission

BSA's technology received the first-ever authoritative interpretation from the Ministry of Science and ICT and the Financial Services Commission, signaling its entry into the domestic market



**과학기술정보통신부**



수신 (주)에프엔에스벨류 (경유)  
제목 BSA정보의 전자서명생성정보 해당여부 검토결과 회신

1. 귀 기관의 무궁한 발전을 기원합니다.

2. 귀 사에서는 '23. 10. 18자로 우리부에 "블록체인 검증기반 패스워드리스 보안인증 솔루션을 통해 수집하는 정보가 현행 「전자서명법」에서 규정하고 있는 '전자서명생성정보'에 해당하는지 여부" 유권해석을 요청하였으며, 이에 대한 검토결과를 회신드립니다.

가. 「전자서명법」 제2조제3호에 '전자서명생성정보'란 전자서명을 생성하기 위하여 이용하는 전자적 정보로 규정하고 있습니다.

나. 귀 사가 우리부에 송부한 [붙임 1]의 자료(P.4-5)에 의하면, 암호문 생성과정에서 휴대폰의 각종정보(BSA)가 개인키와 함께 전자서명의 생성에 활용되는 바, 귀 사의 BSA 정보는 「전자서명법」에서 규정한 '전자서명생성정보'로 판단됩니다.

다. 다만, 상기 검토는 '전자서명생성정보' 해당여부를 대상으로 수행하였으며, 귀 사의 "블록체인 검증기반 패스워드리스 보안인증 솔루션" 수행 방식의 안전성, 신뢰성등 전자서명생성정보 해당여부 이외의 검토는 포함되지 않았음을 안내드립니다.

붙임 1. BSA 기술 요약서 1부.  
2. 유권해석 요청서 1부. 끝.



**과학기술정보통신부 장관인**

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주무관 **박지은** 사무관 **조종훈** 정보보호기획 전결 2024. 1. 18. 과장 **김경우**

협조자

시행 정보보호기획과-129 (2024. 1. 18.) 접수

우 30109 세종특별자치시 갈매로 477, 정부세종청사 4동 3-6층 (어진동) / http://www.msit.go.kr

전화번호 044-202-6447 팩스번호 044-202-6037 / seokjy12@korea.kr / 비공개(S)

Ministry of Science and ICT's  
Authoritative Interpretation

**법령해석 회신문(240112)**

질의 요지	<input type="checkbox"/> 매 로그인시 블록체인을 활용하여 일회성 키(key)를 생성하는 모바일 앱(App)을 통해 본인인증 서비스를 영위하기 위하여 동 '일회성 키'가 전자금융거래법(제2조제10호)에 따른 '접근매체'에 해당하는지
회답	<input type="checkbox"/> 귀사가 제출한 설명자료 및 과기부 유권해석을 참고했을 때, 동 '인증솔루션'은 전자금융거래법 제2조제10호 나목의 전자서명생성정보에 해당합니다. 참고로 전자금융거래법 제2조제10호의 접근매체에 해당하기 위해서는 전자금융거래에 있어 거래지시를 하거나, 이용자 및 거래내용의 진실성과 정확성을 확보할 수 있어야 하며, 이를 위해 키(key) 발급시 법 제6조제2항 등에 따라 실명확인을 거쳐 발급해야 함을 알려드립니다.
이유	<input type="checkbox"/> 전자금융거래법 제2조제10호에서는 접근매체를 정의하고 그 대상을 아래와 같이 열거하고 있습니다.  * 가. 전자식 카드 및 이에 준하는 전자적 정보, 나. 전자서명법 제2조제3호에 따른 전자서명생성정보 및 같은 조 제6호에 따른 인증서, 다. 금융회사 또는 전자금융업자에 등록된 이용자번호, 라. 이용자의 생체정보, 마. 가 또는 나목의 수단이나 정보를 사용하는데 필요한 비밀번호  <input type="checkbox"/> 귀사의 인증솔루션은 귀사가 과기부로부터 회신받은 유권해석에 따라 상기 나목의 전자서명생성정보에 해당합니다.  <input type="checkbox"/> 전자금융거래법상 접근매체에 해당하기 위해서는 귀사의 '일회성 키'가 전자금융거래 관련 거래지시를 하거나 이용자 및 거래내용의 진실성과 정확성을 확보할 수 있어야 하며, 이를 위해 키 발급시 법 제6조제2항 등에 따라 실명확인을 거쳐 발급해야 함을 알려드립니다.

Financial Services Commission  
Authoritative Interpretation

# FNSValue in the media

'Innovative authentication technology that achieved global standardization.'

FNSValue is attracting significant attention from both domestic and international media due to its innovative and unique passwordless authentication solution technology and the global brand recognition it has achieved.



## 매일경제

Maeil Business News

"In the era of super apps, blockchain security without hacking concerns is even more important."

[Read more](#)

## 매일경제

매일경제신문



"FNSValue partners with ITU to support security in emerging countries."

[Read more](#)

## 디지털타임스

디지털타임스



"FNSValue achieves approval of 2 standardization in ITU-T SG17 conference."

[Read more](#)

## 전자신문

전자신문



"FNSValue and ITU officially launch BSA Sandbox."

[Read more](#)

## 전자신문

전자신문



"Enter the blockchain authentication financial market... First authorization interpretation."

[Read more](#)

# FNSValue in the media

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"Distributed Ledger Security Technology Developed by Korean Fintech Firm Determined as International Standard"

[Read more](#)



"FNSValue Begins Full-Scale Expansion into Malaysian Fintech Market"

[Read more](#)

"FNSValue Showcases BSA Technology at Korea-Uzbekistan Banking Association Seminar"

[Read more](#)



"Password Authentication is Disappearing"

[Read more](#)

# Executive Team



CEO & Chairman, founder

**Jeon Seung-Ju**

- FNSValue Co., Ltd. CEO
- FNS (M) SDN. BHD. CEO
- ICT international standardization expert in Korea
- Adjunct Professor at Sahmyook Health University
- Information Management Technical Qualifications
- LG CNS
- Bachelor's degree in Computer Science from Hankuk University of Foreign Studies



CGO & Co-founder

**Kim Hyun-Suk**

- FNSValue Co., Ltd. CGO
- Vice President of J&E Co., Ltd.
- Capital Markets and M&A Specialist
- Senior Attorney at Peter & Kim, an International Arbitration Law Firm
- Co-founder of Rida.ai Logistics Solutions
- Managing Partner for Korea at Clifford Chance LLP, a Foreign Legal Consultant Office



Head of R&D Center

**Jeen Sung-Kwang**

- Ph.D. in IT Policy and Management from Soongsil University
- Adjunct Professor (Department of Hacking and Security), Far East University
- Executive Vice President (CIO/CISO), Hyundai Motor Securities
- Head of IT Department (CIO/CISO), SC Securities
- Bachelor's in Computer Science from Soongsil University



Executive Director of Business Support

**Hwang Hyun-Seok**

- Executive Director of Business Support at MM Bio Co., Ltd.
- Senior Executive Vice President of Retail Strategy at Standard Chartered Bank Korea
- Associate Director of Private Banking Division at Standard Chartered Bank Korea
- Bachelor's in Political Science and International Relations from Korea University



Chief Communications Officer

**Hannah Chang**

- Korea ICT International Standardization Emerging Expert
- Deloitte Korea, Executive Director of Brand & Comm.
  - Deloitte AP WorldImpact Council member
  - The Joongang Ilbo, Staff Writer
- UCLA /Certificate in General Business & Advertising
  - Bachelor's degree in Mass Communication from Busan National University, ROK



COO of Malaysia Branch

**Radhilufti Madehi**

- Over 20 years of experience in IT
- Editor | Study Group 17 Security of International Communication Union (ITU)
- Chairman | SWG Service and Application Security, Malaysian Technical Standard Forum Berhad (MTSFB)
- Head | Cyber Security Division at Malaysian Telecomm (TM)
- Associates at PricewaterhouseCoopers
- Bachelor's Degree in Accounting (Hons.)



Advisor

**John Caras**

- United Nations Security Standards Rapporteur / Advisor to the U.S. Gov
  - ITU-T Rapporteur, US TAG for ISO TC215, IEC Liaison Officer
- Board Member of the Global ACE Certified
- Chief Technology Officer of Quantum Sine Operating PTE
- Vice President of Moore's Crossing M.U.D.
- Member of the Board of Directors
  - Master's degree in Bioinformatics from New York University

# COMPANY HISTORY

FNSValue Co., Ltd. continues to grow and develop as a security authentication solution company, based on public and private projects, solution development, and R&D.



## 2024

- Held ITU Regional Digital Financial Services Security Clinic Asia Pacific
- Held ITU BSA Application Challenge



## 2022 & 2023

- Signed partnership with ITU (International Telecommunication Union)
- 2 NWIs (New Work Items) for International Standardization approved by ITU-T SG17
- Participated in the Dubai Information and Communication Exhibition (GITEX-Expand North Star)
- Participated in 2023 Hong Kong Fintech Week
- Signed collaboration MOU with Big Dataworksfor Fintech data project in Malaysia
- ITU DFS Lab collaborates on a security Certification sandbox for developing countries
- Selected by Invest Seoul Office as 'CORE 100', a promising company to attract overseas investment
- Invited by World bank for cyber security and financial speech
- Participated in ITUWTS-20 GENEVA 2022
- Appointed as a business for overseas Expansion strategy by FCK



## 2021

- Appointed as an IPO of Mirae Asset Securities, carrying out to list on KOSDAQ
- Contracted for PT VADS solution of Indonesia and license supply
- Appointed as a SW High Growth Club By MIST
- Appointed as a consulting business for Overseas expansion by FCK (2021)
- Appointed as an export voucher enterprise by MSS (2021)
- Rewarded OIC-CERT Global Cybersecurity Award grand price
- Guardian-CSS v1.0 Excellent Procurement Product – PPS
- Excellent Technology Prize from 2021 Korea Excellent Company Awards
- Obtained ISO/IEC 27001



## 2012

- Establishment of FNSV

## 2018

- Certified as a family-friendly company by the MOGEF
- Received POC from Malaysia Defence and Completed
- Obtained [Inno-Biz]

## 2019

- Signed an MOC with Telekom Malaysia
- Completed global accelerating program (SG) [KISED]
- ISO 9001 QM certificate
- A simple and security authentication solution, [Guardian-CCS v1.0] GS certificate
- Obtained [Main-Biz]
- Registered Hong Leong Bank Vendor of Malaysia
- Completed fintech security consulting [FS]

## 2020

- Contracted for Telekom Malaysia solution and license supply
- Establishment of FNS[M], the corporate company in Malaysia
- Appointed as a KOIPA business
- Appointed as a consulting business for overseas expansion by FCK
- Appointed as an expert voucher Enterprise by MSS

# Frequently Asked Questions on **BSA**



**What information is required to onboard users?**

We collect only 4 pieces of information : ID, username, email, and phone number. We do not collect any other personal information.



**How can I install BSA with more than 1 device?**

BSA permits only 1 device per user account (this is to ensure identity security protocol). If your device is lost, stolen, or due for an upgrade, you may continue to "Register New Device". The previous device will be automatically signed out.



**Can in delete my BSA account?**

Yes. You may delete your BSA account by going to My Page -> Delete Account.



**What makes BSA stand out from other passwordless authenticators in the market?**

BSA leverages blockchain technology, utilizing distributed node validation instead of traditional passwords, centralized databases, Public Key Infrastructure (PKI) or tokens for authentication. Which means compromising the device is not enough to circumvent BSA.

# Thank you

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