

**Deloitte.**



**Transforming authentication  
for a digital age**

“We are proud to be able to contribute to the successful launch of the Mobile application. Our relationship with a Regional Bank headquartered in Singapore has empowered us with a keen understanding of their vision and strategies, helping us shape the desired solutions in anticipation of their needs.”

**Thio Tse Gan,**  
Executive Director  
SEA Cyber Risk Leader, Deloitte Risk Advisory

“It was a privilege partnering with Deloitte in delivering Asia’s first digital security platform. In the new digital economy, this enables an improved user experience which is more convenient and secure.”

**Benjamin Mah,**  
Co-Founder and CEO V-Key INC

### Solutions for a digital age

In today's digital era, identity is a centrepiece for Financial Technology (FinTech) and its drive towards digitisation. In order to support the growing demand for more transactions and applications for banking services online, there is a keen focus on holistic authentication and authorisation solutions to complete a growing variety of digital transactions.

A Regional Bank headquartered in Singapore has been growing and expanding its business through digital banking – offering a full suite of banking products and services through digital channels such as mobile devices. With a vision to deliver a full suite of banking products and services to the region entirely through a mobile smart phone, the bank required a different banking model that addressed both the risks and benefits of going digital.

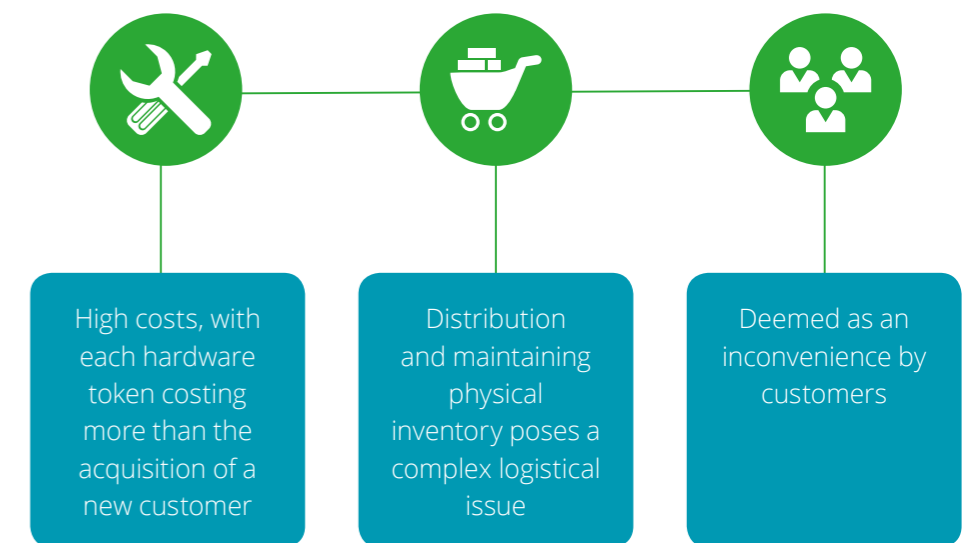
This involved a new generation of second factor authentication in anticipation of the growing digitisation of banking and the inherent security risks that have to be addressed. With a focus on customers, service, connectivity and innovation, priorities for the solution include ease of use, simplicity, convenience, flexibility and security.

The ideal solution for the bank was a less cumbersome and more cost effective method to maintain. Being at the forefront of digital banking and transformation, the bank was looking to evolve its technology and services for the next wave of digitisation to stay ahead of the curve.

### Challenges & limits in the equation

Following current market trends in digital banking, Bank customers are moving away from ATM or branch banking to banking on mobile devices, allowing them to conduct banking transactions anytime, anywhere.

Hardware tokens, which are widely deployed for internet banking in Singapore have shown long term disadvantages that argue against its feasibility.



### Derivative of an absolute value

The alternative solution was software tokens, for the benefits it could reap as part of its digital banking enablement, such as:

- Significantly lower total cost of ownership compared to hardware token i.e. 60% lower
- Customisable to fit the bank's needs in terms of user experience and ease of use
- Residence within the banking app for greater convenience
- No distribution or management of inventory required

With the token securely embedded within the banking mobile application, the token is now conveniently available in the customer's mobile device providing a seamless banking experience from login and authentication to banking transactions all within a secure platform.

### The solution in detail

To implement the solution, the main considerations are to ensure that:

#### 1. Installation of the software token is seamless for customers



With fewer steps to register a token before use



To automate the verification process for customers



Automate OTP and transaction signing for mobile banking

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The approach to the solution was for V-Key to provide the software token application and for Deloitte to incorporate V-key solution into the bank authentication solution.

This developed a process to manage the life-cycle of the software token, giving rise to a unique and secure solution for bank customers when they perform the following:

**Transform their mobile phone into a device for second-factor authentication (2FA).** When the customer attempts to make high-risk transactions, 2FA is automatically requested for. The unique cryptographic key stored inside V-OS, the world's first and only virtual secure element developed by V-Key. It is then used to calculate a time-based One-Time-PIN (OTP) to validate the authenticity of the user's mobile phone as the second-factor device. This restricts high-risk banking transactions solely to the customer's registered mobile device, preventing such high-risk transactions from occurring on other devices.

**Verification of the OTP issued** is managed through the second-factor authentication module develop and updated by Deloitte.

**Tamper protection and system monitoring on both Android and iOS are provided by V-Key.** With a tamper protection system monitoring the runtime environment of the app, it protects against threats including malware, ransomware, viruses, trojans, remote access attempts, device rooting or jailbreaking, debugging, function hooking, and code injection.

**Transaction signing is also performed** by V-key. When a user makes a payment or transfer, the transaction details are cryptographically signed to ensure its authenticity when received by the bank's systems.



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