Egg PLC

The world's largest online bank issues PINs online with SafeNet's Luna SP

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Stuart Horler, Lead Security Architect Egg PLC

Overview

With 3.2 million customers, Egg plc is the world's largest online bank. It's a savvy, agile organization, good at leveraging the Internet in innovative ways. But with a new credit card initiative called "chip and PIN," Egg faced one of the biggest challenges of its six-year history.

Chip and PIN (personal identification number) represents one of the most profound changes in the way people in the U.K. use money since decimalization. Under the system, shoppers present a microchip-embedded smart card for payment. Instead of signing a paper receipt they enter a four-digit personal identification number into a keypad. The system is expected to dramatically reduce fraud.

Clearly a change was needed. A fraudulent transaction takes place every eight seconds in the U.K. However, the transition to chip and PIN presents a challenge. Many people already have "smart" credit cards but don't know what their PIN is - or they need to select one. Credit card companies will have to PIN-notify virtually their entire card population and in some cases will have to provide several PIN reminders. Most companies will do this by mail – which is both costly and a security nightmare. Criminals are good at intercepting PIN letters, and are expected to step up their efforts.

Egg had a different idea. Why not give customers their PINs over the Internet? This would save money, time and virtually eliminate fraud. Trouble was, the idea presented security challenges that had never before been addressed.

The Business Challenge

Egg determined first that mailing the PINs would indeed be wasteful, expensive and most importantly not the best customer experience available. Egg wanted their customers to enjoy the best service experience by being able to use their cards immediately after they received them, rather than having to wait seven to ten days for their PIN to arrive. They also wanted to lower the risk of PIN mailers being intercepted en route to customers as well as decreasing the costs associated with providing up to three million new PINs.

To Egg this challenge had "Internet" written all over it. Yet allowing customers to retrieve their PINs from their homes via the Internet seemed dangerous even to some of the company's own IT people. The system had to be absolutely secure, as well as fast and reliable.

"Our customers expect us to be there 24/7, 365 days of the year," said Stuart Horler, Lead Security Architect at Egg. "We cannot afford for anything to slow down, let alone break down.

This was the framework surrounding the birth of Egg's "PIN Browser" project.

"Our initial reaction to the business request to deliver PIN numbers to customers across the Internet was one of trepidation," Horler said. "No one had done it before, we would need a fresh approach."

One of the biggest challenges of the project was ensuring that the customer was the only person able to view their PIN. Preventing disclosure of the PIN across the entire transaction would be difficult. The third party card issuer holding Egg's customer pin data had doubts as to whether a technology actually existed to achieve this goal.

The Solution

Egg knew they would need a security partner. One of the companies approached was SafeNet who were developing a new product for its Luna line that seemed almost perfectly suited to the challenge of chip and PIN.

That product was Luna SP - an application security module with an integrated FIPS 140-2 Level 3 validated HSM. It would offer hardware key management and would ensure that cryptographic keys and processes were stored and managed exclusively within FIPS validated hardware. Code signing and verification would maintain the integrity of the Java application code and prevent unauthorized application execution. Additionally, strictly enforced access and usage policies would prevent unauthorized access to sensitive applications or data. With tamper-resistant hardware, network connectivity, and secure remote administration, Luna SP would make it possible for Egg to deploy sealed high-assurance Java Web service applications, which proved to be a project-enabling capability.

"Once we came up with the idea of creating an end-to-end secure tunnel between the customer and the third party card issuer we knew only Luna SP could achieve this for us," said Horler.

The Benefits

Luna SP was deployed in May 2004 and has since enjoyed 100 percent uptime.

It also came together quickly, providing customers with a positive experience and Egg with a competitive advantage. The timeline was six months to define the project and select a vendor, a year to develop the service, deliver Luna SP, install it and go live.

One major benefit of the resulting solution was the hard cost savings. For every million card customers, Egg saved hundreds of thousands of pounds in postage and fulfillment costs while providing the customer with a better service – it was a win-win situation for the bank and customers. These savings will continue as new card customers come to Egg or existing customers need new PINs or replacement cards.

Time savings are also a huge factor. A PIN request through the Egg website is fulfilled instantly, and the customer can immediately use the card. A PIN request that has to go through the postal system can take up to 10 days, assuming it is not subject to interception fraud and does actually arrive

"That's a week or more that the customer is either not purchasing or is doing so with a card from another issuer," said Horler. "Multiplied by the number of credit card customers we have, that is a huge potential loss of revenue and an unnecessary inconvenience for our customers."

Egg, and its customers will also be spared the cost, trouble and time associated with card fraud.

With customers retrieving their own PINs they feel more in control. They no longer worry as to when their PINs will arrive and no longer have to wait for days before a PIN arrives enabling them to use their card.

This has an additional benefit to Egg, a reduction in call centre traffic related to PINs.

Development timescales were also reduced. Egg estimates that the ease of developing code for Luna SP has saved between six and twelve months on the project – saving valuable resource and enabling the new solution to be put in place that much faster.

"The Luna SP's Java based architecture enabled secure code to be delivered very rapidly," said Horler. "Solutions put forward by other vendors would have requiring development in the C programming language."

"Developing secure applications in C requires a very defensive programming style. The Java programming language was designed to help prevent programmers from making simple programming mistakes that could lead to serious security vulnerabilities"

Egg were "a bit skeptical" about whether Java would run fast enough, but they are now convinced. The solution enjoys very high levels of performance - before going live it was stress tested and far exceeded Egg's requirements.

"I have always trusted Luna to underpin my security architectures," said Horler. "One of the primary tenets of hardware security modules is key protection. Whilst other vendors have suffered catastrophic key leakage vulnerabilities the Luna HSM has stood the test of time".

An industry offering

Based upon the success of this project SafeNet is offering a packaged 'View PIN' solution to other card issuers.

"One of SafeNet's great strengths is its ability to listen to the requirements of its customers," said Horler. "We worked hard with them during the development of the Luna SP to help ensure it would satisfy all of our current and future security needs".

Dr. Rob Elliss, SafeNet's Director of Sales for Northern Europe, said there is already considerable interest in the product, which would bring rapid deployment and ongoing savings to any organization offering debit or credit card with PINs. With 43 million credit card users in the U.K. alone the need appears obvious with potential initial savings in excess of $32m (£17.2m).

"Roll out of the Chip and PIN project has proven extremely beneficial to Egg, offering us a secure alternative to PIN mailers which is both cost effective and customer friendly," reported Egg's Chief Technology Officer Pete Marsden.

"Everybody understands it's important that customers can trust online banking whilst at the same time benefiting from its convenience, and this initiative will certainly improve the overall experience," said Elliss.

In summing up the project Tracy Willis, Head of Technology Security at Egg, comments: "PIN browser provides a secure and highly convenient approach to PIN distribution for our customers. Our partnership with SafeNet has enabled another online banking breakthrough for Egg."

Future

Egg's experience with SafeNet has developed into a strategic relationship.

"I have always held SafeNet products in high regard," said Horler. " and this opinion is now shared throughout Egg. We firmly believe that SafeNet will play a central role in our security."

For More Information

SafeNet (SFNT:Nasdaq) is a global leader in information security. Founded more than 20 years ago, the company provides complete security utilizing its encryption technologies to protect communications, intellectual property and digital identities, and offers a full spectrum of products including hardware, software, and chips. ARM, Bank of America, Cisco Systems, the Departments of Defense, and Homeland Security, Microsoft, Samsung, Texas Instruments, the U.S. Internal Revenue Service, and scores of other customers entrust their security needs to SafeNet. For more information, visit www.safenet-inc.com.

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