

Arroweye Saves 75% and Expedites Entry into Open Loop Payment Card Market Using BCSS

Company says BCSS was critical factor in passing Visa™ and MasterCard™ audits

When Arroweye Solutions, Inc., decided to introduce a revolutionary card manufacturing process to the open loop payment card market, it faced the challenge of passing two Visa security audits. Key management and the ability to generate security codes (CVVs) using a host security module (HSM) were two of the requirements that proved especially daunting.

Brian Huse, Arroweye's chief information officer and vice president of research and development, led the Visa certification project. He found that the traditional

when he discovered that Prime Factors offered the only true off-the-shelf solution for the open loop payments market. "Not only did BCSS save us money," Huse said, "it also turned a six-month, in-house development project into a six-week implementation project."

BCSS is the lower cost alternative to custom programming ordinarily required to implement key management and create security codes. It includes a configuration program, a database and an extensive subroutine library of more than 100 functions that

"WE CHOSE BCSS BECAUSE IT GAVE US A COMPLETE PRODUCT. FRANKLY, WITHOUT IT, WE WOULD ONLY HAVE THE BARE ESSENTIALS..."

— Brian Huse, CIO Arroweye Solutions, Inc.



path of in-house custom programming was not only expensive but also tremendously time consuming, restricting Arroweye from getting to market fast enough. Huse began an exhaustive search for a software solution that could both help comply with the technical requirements of VISA and help Arroweye to shorten their time to market.

After several technical assessments, Huse determined the Bank Card Security System (BCSS) from Prime Factors would exceed their minimum technical requirements and cost approximately 25 percent of the price of developing the software internally. For Huse, buying BCSS was the obvious choice, especially

facilitate the security functionality required in issuing payment credentials and processing payment card transactions. BCSS is designed to minimize programming and reduce the complexity of integrating and managing Thales payShield® payment HSMs in secure payment card manufacturing environments.

"We chose BCSS because it gave us a complete product," Huse said. "Frankly, without it, we would only have the bare essentials to manage the keys and do the CVV calculations, and it's likely that we would still be facing the cost of additional development down the road."

The Arroweye Assessment

Arroweye is the first company to manufacture and print the Visa™ logo on-demand while simultaneously personalizing the payment card. Its unique just-in-time production process eliminates pre-manufactured card inventory, giving issuers and program managers the freedom to produce cards as needed, when needed, each with fully customized design. Arroweye's process reduces traditional card delivery cycles for national brands from weeks to days.

One of Huse's first challenges was to figure out how to incorporate an HSM into Arroweye's card manufacturing process. He quickly realized it would require significant programming to make an HSM work in Arroweye's environment. BCSS eliminated all of that programming. Its library of subroutines includes functions to process Thales HSM host commands. BCSS will also minimize the impact of Thales firmware changes in the future. For example, BCSS supports the latest versions of the Thales payShield payment HSM.

The BCSS Advantage

BCSS's subroutines work with Thales payment HSMs to create a variety of security codes including those needed by Arroweye — CVV1 and CVV2. "The algorithm for calculating the CVV values can be intimidating," Huse said. "We sought to find a partner that could recreate that code and ensure 100 percent flawlessness.

While programming the algorithm to create security codes is complex, developing a key management system, according to Huse, is even more challenging. "We wanted to be able to produce the CVV values on the fly," Huse said. "The more we learned about the complexity of the software integration with the HSM and the key management requirements, we realized our need for a fully integrated and proven solution."

BCSS is used by the leading secure personalization payment card bureaus world-wide. It provides complete key management and secure storage of all keys required for secure payment credential issuing and payment verification processes. BCSS and the Thales payment HSM work together to deliver key management functionality including key generation,

key distribution, key loading, key storage and key usage.

"I really like the fact that BCSS does not store any of the keys in the HSM," Huse said. "They are all 'out-of-the-box' — stored in the local BCSS secure database, encrypted by a "Local Master Key" that is unique to the

"We sought to find a partner that could recreate that code and ensure 100 percent flawlessness."

specific HSM, making them very secure. Unlike many HSM applications, this allows BCSS to operate with only one key in the HSM. This gave Arroweye a manageable process to maintain a significant number of active BIN records online as required by our variable one-off card production."

The Arroweye Implementation

By using digital imagery, Arroweye can design and produce customized debit, credit and prepaid payment cards from one to tens of thousands in 24 hours, at nearly identical protection costs. In any given production run, Arroweye can securely create Visa payment cards for a variety of different financial institutions and payment card programs.

"BCSS allows us to print a sheet with 21 cards on it for 21 different banks and instantly calculate 21 different CVV values for the 21 different BINs, all on the same sheet," Huse said. "We can run them all together and calculate values on the fly as we manufacture sheets."

With help from BCSS, Arroweye brings this this level of production flexibility to the open loop payment market for the first time.

"The standards set to receive Visa certification are thorough to say the least," Huse said. "Working with Prime Factors to implement BCSS made the certification process go much more smoothly, saving us time and money and getting us to revenue more quickly."

[See real data security in action.](#)

[Click here to request a free proof of concept.](#)