EMV is coming to America. After 1st October 2015 card, issuers can be held liable for fraud-related chargeback costs on non-EMV chip cards.

The Digital Locksmiths EMV solution - **Spartacus**

The EMV Imperative

The liability shift means that issuers will have to provide EMV-compliant cards - issuing cards that do not support EMV is no longer an option.

In addition to this imperative, EMV offers several benefits:

- EMV chip technology reduces card fraud in the card-present environment;
- EMV provides global interoperability;
- EMV enables safer and smarter transactions using both contact and contactless channels.
- The use of smartcards for payments provides the opportunity for additional on-card features, such as loyalty application.

The question is not whether to switch to EMV cards but how to manage the transition to EMV cards with minimal interference to on-going operations and with minimal cost.

The Opportunity

The payment card market is dominated by high volumes and slender margins – EMV solutions are provided by third parties who charge a premium for their services. However, Card Manufacturers who invest in their own EMV products remove the need for third party products and therefore open up additional revenue streams.

Owning your own EMV solution also opens the way for the incorporation of value-adding features such as optional, payment scheme specific functionality or bespoke loyalty applications.

The Solution

The **Spartacus** EMV solution has been developed specifically to provide Card Manufacturers with their own implementation of the EMV specification. The **Spartacus** product combines full compliance with the EMV standards (MasterCard, Visa and EMVCo flavours) with high security and a low risk implementation plan to provide the most cost effective payment solutions.

Spartacus encapsulates a secure hardware abstraction layer, fully certified EMV support and customisable extras making it the ideal starting point for both “Me too” commodity offerings and enhanced, value adding products. You have control over all aspects of card production, from sourcing the silicon through specifying the applications all the way to card initialization and application personalization. This level of control allows you to cut out the middle-man and take advantage of the benefits of owning your own products.

Developed to the latest EMV, Visa and MasterCard specifications, **Spartacus** provides proven capability coupled with product flexibility:

- Contact only or dual-interface products;
- Implementation of the EMV Card Personalization Specification. This provides a consistent interface across the applications allowing for the reuse of expensive personalization equipment, thereby safeguarding investment and reducing the long term cost of ownership;
- Optional support for VSDC profiles;
- Optional support for the MasterCard Advance Data Storage functionality;
- Optional data sharing between payment applications;
- Support for a wide range of silicon platforms.

Your EMV products can also be customized by adding file-processing applications, for example a loyalty application. Such applications can be tailored to your needs and those of your customers without risking the integrity of the EMV applications.

The Commercial Proposition

The immediate cost benefits from owning an EMV application instead of buying modules is based on the current cost of modules from the silicon manufacturer compared to the cost of the same modules with application from a typical third party supplier. The following calculations are illustrative, with approximate costs based on a recent project.

Third party dual interface EMV module.	$1.80
Current cost of chips.	$0.60
Our royalty fee.	$0.10 per chip
One off cost of customization	$50,000
One-off cost of certification	$50,000

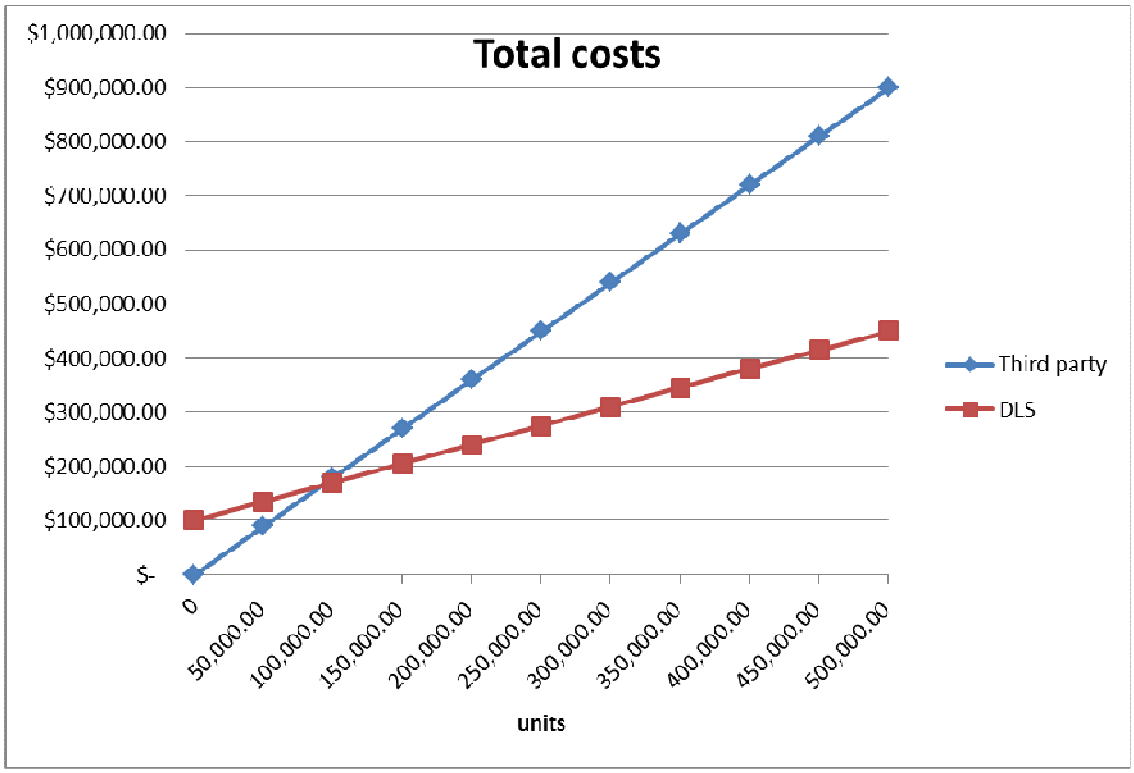

Figure 1: Cost of Delivery

As can be seen the initial one off costs associated with creating and certifying a bespoke mask are soon recouped as the significantly lower unit cost means the break-even point between the alternative approaches is fewer than 100,000 units.

This provides a margin of $1 per card for the cost of card production, embedding, printing and profit. The margins increase when the cost of certification is amortized over a larger number of chips as is illustrated below.

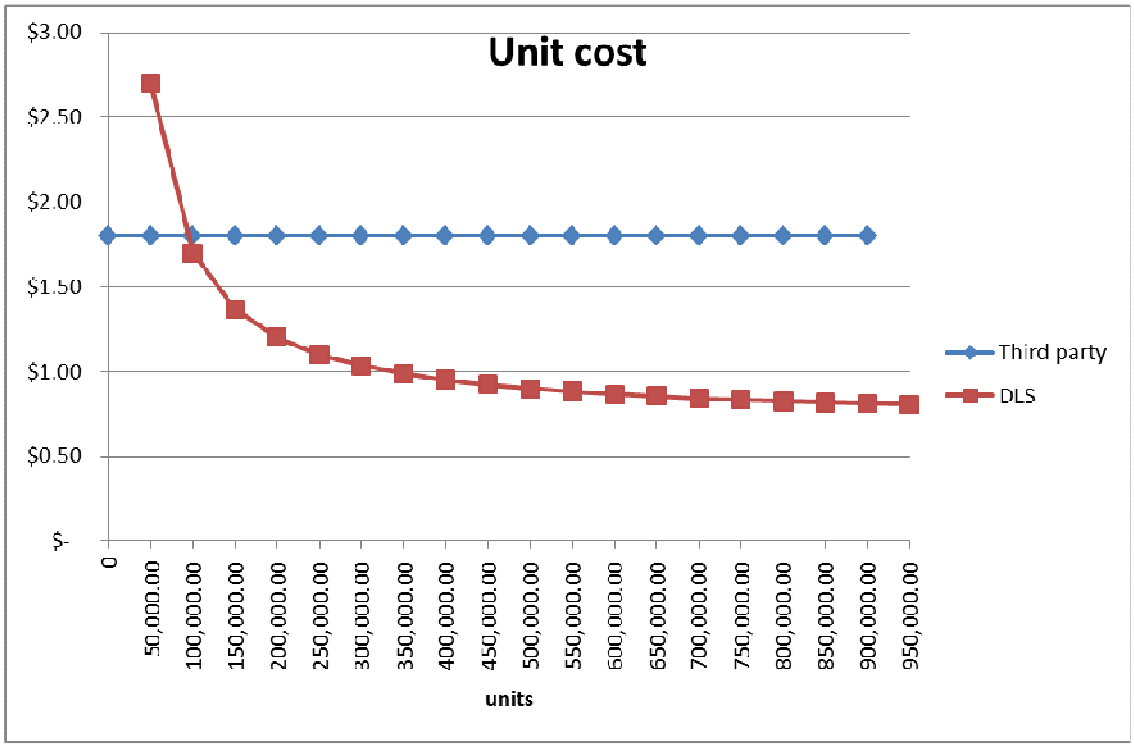

Figure 2: Unit Cost with Volume

The simple illustration above ignores the economies of scale where both third party and direct silicon suppliers will offer lower prices for significant volumes. However they will scale for both the cost of chips and modules, thus the figures given are still illustrative of the possible savings. It also includes an approximate cost for customization (typically $50K), which might vary according to the customer's choice of silicon and any additional requested functionality.

Note that there is an additional saving. Our EMV applications are loaded onto FLASH chips. This means that a chip can be configured to be either Visa or MasterCard, determined at the time of chip initialization. This provides for more efficient stock management, removing the need to keep separate stocks of Visa and MasterCard modules.

Note also that owning your own EMV application opens the possibility for taking advantage of lower silicon prices because you aren't tied to a single silicon manufacturer. Cheaper sources of silicon regularly come onto the market, each typically offering significant savings compared to the preceding generation of silicon. If there are no updates to the EMV applications required, it takes approximately 9 months to port the application to new silicon (including re-certification on the new platform). There will be the same overhead in getting the product re-certified, but engineering costs can be expected to be recouped within the first 0.5M sales.

The Company

As independent suppliers of security software, Digital Locksmiths have an unrivalled experience in all aspects of EMV card software development. We have implemented successive generations of the EMV specification on a wide range of devices from the industry's leading silicon manufacturers.

Spartacus is field proven and ready for deployment.

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