EMV Compliance in the Retail Oil Industry

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Abstract

The initiation of new card standards by Europay, Mastercard and Visa under the banner of EMV has meant merchants must migrate their traditional magnetic stripe payment systems to EMV-compliant smartcards systems or be held liable for card fraud.

The retail oil industry is looking to replace not only in-store payment terminals, but also those located on service station forecourts for customers to pay at the fuel pump. However, terminal vendors have not sufficiently addressed the requirements of EMV certification and the requirements of related standards in their products to date.

Pressure from national governments to enforce these card security standards, combined with the rapidly evolving smartcard market suggests that the needs of the retail oil industry for outdoor payment terminals will not be met by traditional terminal suppliers.

EMV Overview

Credit card fraud continues to proceed at an increasing rate worldwide, and the major card companies have begun to look to technology to reduce the ease of fraudulent activity. Smartcards are an established technology that represents a more difficult method of payment to emulate and hence a greater barrier to the production of illegal cards.

Europay, Mastercard and Visa have combined to produce a series of standards for smartcard payment referred to as 'EMV, scheduled to come into effect with varying dates by country over the next few years. Crucially, the credit card companies themselves will no longer be liable for any fraud committed with merchants after these dates unless the merchants use only EMV-certified payment infrastructure.

EMV And The Oil Industry

The retail oil industry faces an additional problem to those confronting most merchants in the migration from magnetic stripe cards to smartcard systems. As well as terminals within the 'store' part of a service station, any payment terminals located on the forecourt for reasons of customer convenience must also be upgraded to supporting smartcards.

Forecourt payment terminals are a specialised product, due to the specific characteristics of a harsh and potentially complex environment. With dangerous chemicals and exposure to dirt, dust and weather, the demands on such a terminal are mechanically very different from those on a terminal located indoors. As a result, the number of vendors is limited, and these tend to be those organisations that best understand the environmental conditions, rather than those with the best grasp of the demands of a changing payment landscape, and EMV compliance in particular.

Design For Non-Compliance

The confusion over exactly what comprises 'EMV compliance' is clearly evident in design decisions made by the vendors of outdoor payment terminals. This extends to related standards such as the Payment Card Industry (PCI) Requirements for PIN Entry Devices, announced on April 28, 2004 as a conglomeration of Visa's PED Testing and Approval programme and the Mastercard CAST for PED process, which comes into effect on October 1, 2004[1].

In order to be fully compliant, the payment terminal must achieve EMV Level 1 certification, EMV Level 2 certification and Visa/Mastercard PED approval. EMV Level 1 compliance is electromechanical in nature, pertaining primarily to the card reader, whilst EMV Level 2 addresses the software kernel. The Visa/Mastercard PED requirements encapsulate the enclosure.

It is readily apparent that present terminal designs being produced by vendors are either non-compliant, or only partially so. For example, the PED standard states that, "Visa requires that the PIN entry device be equipped with proper shielding equipment for privacy"[2]. The hand and body of the cardholder is not sufficient for forecourt terminals, as Visa/Mastercard will only accept this in the case of handheld PEDs. Most new generation forecourt terminals, including those proclaiming

to be EMV compliant, do not have an adequate privacy shield.

The Importance of Contactless

The migration from magnetic stripe cards to smartcards has led to views towards the next shift in payment technology. However, this is clearly not a distant shift, but is already in effect. Contactless smartcards show significant advantages over their contact counterparts, and their adoption is well underway, particularly in the USA. Visa and Mastercard have their own proprietary contactless implementations.

Stuart Taylor, Vice President of Global Marketing at Verifone, believes contactless smartcards are the way of even the short-term future. He states in an interview with Smartcards Trends, "We believe that [contactless] technology will be a success here in the US. The contact smart card accounts for no more than 5% of the installed terminal base and recently Target (mass merchandiser) unfortunately abandoned its contact smart card program. Despite the limited success of contact smart cards in the US, we expect contactless payment to become very successful because of its ergonomics and user friendliness."[3]

Forecourt payment terminal vendors have again demonstrated an overall lack of foresight in this area. Select few outdoor terminals have native contactless support, an option that is no simple retrofit. With the short lifespan of contact smartcards forecasted, the retail oil industry may find itself lumbered with a second expensive terminal replacement operation in a matter of years with the growing consumer acceptance of contactless technologies.

Certification Enforcement

The certification of the payment terminals within a given market space is traditionally the responsibility of the financial institutions acquiring the transactions. These institutions have adopted different measures of conformity for those terminals they accept transactions from.

The extreme levels of fraud in some countries have reached the point of creating a crisis of confidence in payment card markets, leading to severe erosion in national image. Reducing this fraud is taking on national importance, with significant governmental pressure being brought on the acquiring institutions to enforce the EMV and Visa/Mastercard PED standards to a consistent level nationwide.

For example, the Government of Malaysia, a country with a particularly poor reputation for card fraud, have gone to the extent of establishing a Terminal Migration Organisation (TMO), responsible for the certification of all payment infrastructure equipment during the EMV migration process. The Malaysian TMO is required to ensure the payment systems landscape in Malaysia both adheres to a comment set of standards and meets the rapidly evolving needs of the smartcard market.

R&D Technology Solutionz

R&D Technology Solutionz (RDTS) are a New Zealand company based in Palmerston North working on innovative new technologies, including RFID systems for the retail oil industry. RDTS are involved in the integration, development and deployment of systems in a number of countries across the globe.

RDTS specialise in consultancy and development for technological systems, including all stages from initial requirements and architectural design through to wide-scale deployment and maintenance.

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References

[1] VISA INTERNATIONAL [2004] "Visa And Mastercard Aligning PIN Entry Device (PED) Security Requirements"
Visa International, 2004

[2] VISA INTERNATIONAL [2004] "Visa PIN Entry Device Testing and Approval Program Guide Version 3.0 "
Visa International, March 2004

[3] SMARTCARDS TRENDS [2004] "Fast Food, Health and Contactless Booming in the US"
Omnipress, April-May 2004