As the U.S. figures out how to deploy EMV, all parties — the issuers, acquirers, processors, merchants and networks — will need to consider what to do about offline versus online PIN validation and transaction authorization. Will these options make sense in the U.S.?

It is important to note that these are two distinct options that can be deployed independently of one another.

**ONLINE VERSUS OFFLINE PIN VALIDATION**

The EMV specification will allow PIN validation to be performed between the card and the terminal. Across the U.S., PIN validation today typically occurs at the issuer’s transaction processing systems via the online transaction.

While it might be beneficial in some applications to allow offline PIN validation, this will introduce additional considerations for how PIN information is maintained at the card and on the issuer’s host system. Especially if features like PIN changes and PIN blocks are allowed to take place at the card and terminal level, there will be a need to ensure host systems and information held on the card remain in sync.

While U.S.-issued cards used at devices in the U.S. could enforce online PIN validation, card issuers will also need to consider whether they will configure their cards to allow offline PIN validation at a foreign device. One may also have to consider mobile payment instruments held on a phone or in a wallet if these devices will make use of offline PIN validation functionality.

**ONLINE VERSUS OFFLINE TRANSACTION AUTHORIZATION**

Another provision of the EMV specification allows transactions to be authorized between the terminal and card. Initial deployments of EMV across Europe used this feature where communications infrastructures were not always reliable.

Today, offline authorization is also used for certain low-risk/small-value transaction types where it makes sense. In these situations, floor limits can be established in the EMV parameters on the card, and if supported by the merchant terminal, transaction authorization can take place locally with no need for online/real-time authorization. Merchants and other entities such as transit systems that need “speed at the checkout” will drive the adoption of EMV offline transaction authorization features.

As with offline PIN validation, offline transaction authorization will also introduce additional processing consideration such as how and when transactions will be uploaded and settled against the consumer’s account.

**WHAT WILL THE U.S. DEPLOY?**

Over the years, the U.S. payments infrastructure deployed by the issuers, merchants, processors and networks have come to depend on:

- Online PIN validation for PIN debit and PIN prepaid
- Online transaction authorization for most debit, credit and prepaid
- Signature-based debit and credit transactions

Is there any need to change? Does the migration toward EMV in the U.S. need to alter consumer behavior at its onset?

Card issuers will need to consider where and how their cards will get used both inside and outside of the U.S. and configure their EMV payment instruments appropriately. For U.S. cardholders using their EMV card or mobile payments instrument overseas, issuers will need to consider features widely used in other parts of the world. Canada, for example, has chosen to deploy chip and PIN across all card types. Many parts of Europe have chosen to support offline PIN validation, and in some cases, offline authorization for certain transactions.

As merchants in the U.S. continue to accept convenience payments without a signature or PIN, there is a belief that the offline provisions of EMV will take hold inside the U.S., especially as the market moves toward more contactless and mobile payments.

The good news is EMV will accommodate both online and offline, as well as signature and PIN. This would allow the U.S. to start out minimizing impacts on the existing infrastructure, but migrate to offline and/or PIN and other cardholder verification methods when and where it makes sense.
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