

## Crunchfish simplifies secure offline mobile payments

**Crunchfish AB ("Crunchfish") simplifies its Offline Wallet solution for mobile payments, without compromising on its security. Now a security element is integrated only into the consumer payment application maintaining an offline balance. This makes Crunchfish's patent pending solution more flexible, scalable and easier to roll-out in markets. The simplification accelerates our partner discussions in India and also creates interest from payment services in other markets.**

Mobile payments are sensitive to online connection issues and potential downtime of the payment service, bank or electronic identification service. Crunchfish has a patent pending [pioneering innovation](#) where mobile payments are made independent of any online issues at the moment of payment. This is implemented in the company's trusted Offline wallet application.

The Offline wallet is implemented in a secure element that may be integrated in consumer payment applications. It handles cryptographic information, the offline balance and transaction logs with banking grade security. The simplified implementation requires a secure element to be implemented only on the consumer's payment application. The secure element [V-OS](#) is provided by [Crunchfish's partner V-key](#).



Figure: Crunchfish's trusted Offline Wallet application is implemented in a secure element in the consumer's mobile payment application.

The payee must only be able to verify and buffer a cryptographic signature of the offline transaction. This may be accomplished by a merchant payment application, billing machine running on a PC or a POS terminal. The transfer of offline transaction data has also become easier as two-way communication is no longer required. The merchant may simply scan a QR-code, import the transaction data to a billing machine via Blippit app terminal using Bluetooth or to a POS terminal over NFC.

The simplification that offline payments may be realised without a secure element on the merchant payment application makes Crunchfish's patent pending solution considerably more flexible, scalable and also easier to roll-out in markets. It accelerates our partner discussions in India and creates opportunities with payment services in other markets. The solution may also be of interest for mobile payment applications using cards as the offline balance takes away the risk for the merchant to accept payments if the POS terminal is offline.

*"Offline payments are a natural step for mobile payment applications in markets where online connectivity is an issue, but also where cash is being marginalised as such societies becomes vulnerable without a means of payment that works offline. Crunchfish's patent pending, secure and simple solution to pay offline with the mobile is ground-breaking", says Crunchfish's CEO Joachim Samuelsson.*

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**About Crunchfish – [crunchfish.com](http://crunchfish.com)**

Crunchfish develops and markets interaction solutions for mobile payment in a physical environment. Crunchfish's proximity-based technology connects a customer's mobile phone to a payment service in a Point of Sales terminal at a merchant, and even has a patent-pending innovation for payments when both the customer and merchant are completely without connection to the payment service. The solutions are marketed to payment apps, cash register providers and merchants in Sweden and India, as well as to multinational companies.

The company also develops interaction solution based on gesture control and has integrated that technology into millions of smartphones currently on the market. Today, development of the gesture control technology is focused on smart, AR glasses.

Crunchfish has its headquarters in Malmö, Sweden. The company also has offices in Stockholm and representation in India. The company drives its businesses through two subsidiaries, Crunchfish Proximity for proximity-based interaction for mobile payments, and Crunchfish Gesture Interaction for gesture control for smart, AR glasses. Crunchfish was founded in 2010 and has 23 employees.