

PAYMENT RESILIENCE

## **Governed Offline Architecture Endorsed by CBSO For Resilient Payment Systems**

Malmö, March 9th, 2026.

The Central Bank Standards Organisation highlights Governed Offline as an architecture that enables digital payments to continue operating during connectivity outages without introducing new systemic risks.



## **OFFLINE PAYMENTS AT SCALE AS DIGITAL MONEY**

Architectural Requirements for  
Resilient Payment Systems

Central Banking Standards Organization  
[centralbankingstandards.org](http://centralbankingstandards.org)

As payment systems around the world become increasingly digital and real-time, central banks and payment system operators are placing growing emphasis on offline payment capabilities to strengthen the resilience of national payment infrastructure. Recent outages in payment and digital banking infrastructure globally have highlighted the importance of ensuring that payment systems remain operational even when connectivity or critical backend services fail.

Digital payments today account for most consumer transactions in many economies, increasing the importance of maintaining operational continuity even during infrastructure disruptions. This shift is driving a broader industry focus on **Resilient Payment Systems**: payment infrastructures designed to continue operating during connectivity outages or backend disruptions.

*"Offline capability will become a fundamental resilience requirement for modern payment systems and Governed Offline provides a way to achieve this without introducing new systemic risks."*, says **Crunchfish CEO Joachim Samuelsson**.

Ensuring that digital payments remain operational during infrastructure disruptions is increasingly viewed as an important element of financial stability and national payment system resilience.

Malmö-based fintech company Crunchfish AB (publ) today notes that the Central Bank Standards Organisation (CBSO) has endorsed the Governed Offline architecture, developed by Crunchfish, as a promising architectural approach for enabling resilient payment systems capable of operating during connectivity disruptions.

The endorsement from CBSO is available here:

<https://www.linkedin.com/feed/update/urn:li:ugcPost:7436597516672061441>

The endorsement relates to Crunchfish's recently published attached whitepaper describing the Governed Offline architecture, which addresses a key structural challenge in modern payment infrastructure: how digital money can continue to function when payment systems are offline.

<https://www.crunchfish.com/offline-payments-at-scale-as-digital-money-new-whitepaper-from-crunchfish/>

Digital payment systems are designed to operate continuously online. While this enables real-time payments and highly efficient financial infrastructure, it also creates structural vulnerability. When connectivity fails or backend systems experience outages, payments may stop entirely. Consumers and merchants already experience such disruptions on a regular basis. In the event of prolonged outages, all digital payments could be affected simultaneously, creating systemic risk.

Historically, offline payments have been addressed through two main approaches.

- The first approach, often explored in central bank digital currency (CBDC) initiatives, is the **immediate offline model**, where monetary value is stored directly on user devices to replicate properties of physical cash.

- The second approach, commonly used in card payment systems, is the **deferred offline model**, which allows transactions to proceed temporarily without authorization and settle later when connectivity returns.

**While both approaches provide offline capability, they also introduce new systemic risks.**

Immediate models create device-based monetary environments that are difficult to scale, govern and integrate with existing banking systems. Deferred models may lead to unmanaged credit exposure during longer outages.

The **Governed Offline architecture** addresses the problem from a different perspective. Rather than moving money to devices or introducing unmanaged credit risk, it enables offline payments within existing financial infrastructure, preserving governance, interoperability and banking balance-sheet integrity. Offline capability therefore becomes a resilience layer within the payment system, rather than a separate monetary mechanism.

Crunchfish argues that an effective offline payment architecture must satisfy three fundamental criteria:

- **Bankable** — aligned with banking balance sheets and liquidity management
- **Implementable** — scalable, interoperable and vendor-neutral
- **Governed** — preserving regulatory oversight and avoiding new systemic risks

When these conditions are met, payment systems can remain operational even during connectivity disruptions.

*"We are encouraged to see the Central Bank Standards Organisation endorsing Governed Offline as a promising architectural approach. As payment systems become fully digital, resilience becomes a critical requirement. Governed Offline enables offline payments while preserving the governance and economic foundations of modern financial systems."*, continued Joachim Samuelsson.

Over recent years, Crunchfish has focused on developing the technical and architectural components required to enable governed offline payments within existing financial infrastructures. The company's solution is designed to integrate with banks, payment networks and digital wallets without requiring changes to underlying account-based payment systems. Through this work, Crunchfish has contributed practical implementation experience to the broader discussion on how resilient payment systems can support offline transactions while maintaining governance, interoperability and financial stability.

Crunchfish continues to engage with central banks, payment system operators, digital wallet providers and financial institutions globally on enabling resilient payment infrastructures capable of supporting offline transactions.



**For more information, please contact:**

Joachim Samuelsson, CEO of Crunchfish AB

+46 708 46 47 88

[joachim.samuelsson@crunchfish.com](mailto:joachim.samuelsson@crunchfish.com)

This information was provided by the above for publication on March 9th, 2026, at 14:00 CET.

Västra Hamnen Corporate Finance AB is the Certified Adviser. Email: [ca@vhcorp.se](mailto:ca@vhcorp.se). Telephone +46 40 200 250.

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

Crunchfish is a deep fintech company developing patented governed offline payments technology for payment systems, banks, and payment applications. Its reservation-based Layer-2 architecture enables offline payments to operate as digital money, preserving central ledger authority, bounded exposure, and liquidity anchored within regulated institutions. By structurally aligning banking economics, scalable deployment, and governance continuity, Crunchfish enables offline capability at institutional scale without creating parallel forms of money or unmanaged credit risk. Crunchfish is listed on the Nasdaq First North Growth Market.