
crunchfish
RETHINKING PAYMENTS
HALF-YEAR REPORT
2025

New go-to-market strategy is working

Crunchfish announced a turnaround – third time's the charm in the Q1 report. The new go-to-market approach has had an overwhelming reception in the market. Most importantly, India has taken it to heart and the National Payments Corporation of India is implementing the approach into their payment networks. This opens the market to sell Digital Cash wallets to all payment services providers in India. Furthermore, we have during this quarter widened the market to many other opportunities in the rest of the world.

CRUNCHFISH CEO JOACHIM SAMUELSSON
IN FRONT OF THE HEADQUARTER IN MALMÖ
WITH TURNING TORSO IN THE BACKGROUND

A week after the release of the Q1 report I went to the Digital Currency Conference in Bangkok to announce the new go-to-market strategy which essentially is a new way to package and present our solution. Instead of marketing the whole solution as a package to payment networks and payment service providers we split it up into a receiving part for the payment networks and the sending or paying part for the payment service providers.

There are two distinct actors in a payment ecosystem – payment networks and payment services. The role and responsibility of the payment network is to define the common standards of the payment network and to accept and process payments so that the money arrives to the recipient. On the other hand, there are payment services that enable users with the ability to pay. They need secure wallets so users cannot double spend, that is spend their funds more than once.

By splitting up our product by offering the terminals to payment networks and wallets to payment services respectively we have a much better way to approach the market than trying to sell the whole system to either of these parties. The problem we have been facing for years is that neither part wants our whole system, but it resonates with the market when we have broken it up into parts.

The go-to-market strategy is clear. First we have to approach the payment networks and enable it to receive payments. Then we can market wallets to all payment services that are using that payment network. To accelerate our market penetration we have decided to offer the payment networks the ability to receive for free as we then open the market for us to sell wallets to the payment service providers using that payment network. It is by selling wallets to payment service providers we can create a scalable business and it starts in India and with a referernce case from this leading market we can expand to other national or international payment networks.

Broadening our offer

We announced in June as we are **rethinking payments for all types of retail payments – online, offline, and cash**. With the Digital Cash Wallet it is possible for a payment service provider to strengthen the identity authentication of the payer. This is important to reduce potential fraud in online payments. Furthermore, for online payments we bring with our wallets load balancing and resilience.

We annouced in June also a way to **rethink cash payments**. If a customer pays in a store with cash for goods and services it is typically not for the exact amount. The merchant then owes the customer money and this may be returned digitally instead of cash. Crunchfish delivers this use case also with our Digital Cash solution but equipping the merchants with wallets so they can pay digitally also. The Reserve Bank of India has expressed intrest in this use case and we are discussing a pilot with a fintech that has 200 000 merchants served by them. It is this use case that will be presented at the **Asia Cash Cycle confrence** in Bali in September and at **the Americas Cash Cycle conference** in Miami in November.

Industry validation

We are happy to note that Crunchfish approach is being validated by industry professionals. Recently, the International Monetary Fund (IMF) published a fintech note discussing the existing CBDC options for offline payments. Table 2 in the report clearly states what we have been saying for years that hardware-based Secure Element (SE) or Trusted Execution Environment (TEE) solutions are very challenging to scale. In parallel, two of the co-authors came out with a complementary 2-pager on Crunchfish Digital Cash solution as it was only briefly described in footnote 5 in the IMF paper.

Another whitepaper is from Bank of Canada. It is a feasibility study on retail CBDC solutions. They refer to online CBDC solution although their finding can be generalized to offline. Bank of Canada recommend the MIT Digital Currency Initiative's OpenCBDC 2PC (2 phase commit) architecture as the most promising for retail CBDC. They argue that it is of paramount importance to protect the integrity of the core ledger and propose therefore a ledger update in wallets as phase 1 and then after careful validation should the transaction be committed to the core ledger as the second phase. This approach is identical to the Reserve, Pay, and Settle approach we have been suggesting for years. There is an offline/ off-chain transactional update of ledgers in wallets as a first step and then there is a subsequent settlement on the core ledger. The transaction is an digital IOU (I Owe You) rather than a digital banknote.

Crunchfish has also annouced a partnership with the Central Banking Standards Organization (CBSO), a global non profit dedicated to defining comprehensive technical and operational standards for central banks. By this collaboration we aim to integrate our archtecture into CBSO's open, interoperable, holistic framework for Central Banking 4.0.

Financing and closing remarks

We are very happy that our new go-to-market announced last quarter is working. Payment networks are interested in integrating terminals and gateways which open their networks to sell wallets to the payment service providers on the payment network rail. To ensure that we have sufficient time to become cash flow positive by revenue from payment service providers equipping their users or merchants with Digital Cash Wallets we are exploring ways to finance the company. We have started several parallel processes early this year and at this juncture we have a number of options on the table besides asking our shareholders again for additional capital. The target is to extend the runway of cash into 2027 to suffice even in a worst case scenario.

With the validations and positive signs of our approach from the industry, payment networks and service providers we are very much looking forward to a very busy time ahead. In September there are three payment conferences ahead of the Global Fintech Fest in Mumbai in early October where we have a great presence. Please make sure to follow our lead.

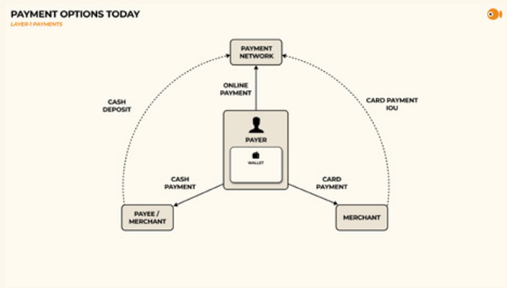
Rethinking Payments

"They say the shortest path between two points is a straight line. But what happens when the path is blocked? The river never stops flowing. It bends. It finds its way around. It takes a detour – not because it wants to, but because it has to. What looks crooked from above is the most efficient path for water. Nature adapts. It doesn't give up. So do we. Some bonds cannot be broken. Some transactions are meant to happen – regardless of time, place or logic. The universe finds a way. When all else seems impossible. When hope is gone. Two points that are meant to meet will. Sooner or later. By Crunchfish's way there is survivability in the face of failure. Now also on the application level by deep fintech from Crunchfish."

Rethinking Payments Online, Offline, and Cash

Crunchfish is rethinking retail online, offline, and cash payments by enabling resilience and payment service availability on layer-2, regardless of network connectivity issues or server outages. From rural merchants in remote areas to urban customers impacted by network congestion or service disruptions, the ability to pay no matter what is rapidly becoming an essential feature of modern financial ecosystems.

In today's financial landscape, end users and merchants rely on a variety of payment options—cash, cards, and online methods—to facilitate transactions. Each of these payment methods offers unique advantages, yet they also come with inherent limitations that can hamper the overall transaction experience.



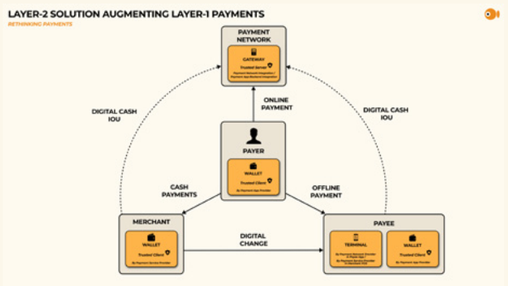
- Digital Payments: Digital payment options, whether through e-wallets or mobile apps, have gained immense popularity. They enhance convenience and speed, but the reliance on a stable internet connection can be a barrier in various contexts. Digital payment systems can also create challenges regarding user privacy and data security, particularly when sensitive information is transmitted without adequate safeguards.

- Card Payments: Card payments offer convenience and security but are not without their drawbacks. There is a credit risk for offline payments, and for mobile card payments it is typically not even allowed without internet connectivity. They rely heavily on third-party processors for authorization and settlement. This dependency can lead to transaction failures or delays—especially during network outages.

- Cash Payments: While cash is widely accepted and provides immediate value exchange, it poses significant challenges for merchants. Handling cash involves logistical burdens such as ensuring sufficient change, managing security risks, and dealing with daily cash reconciliations. Additionally, cash transactions are not easily traceable, making them less favorable in an age that demands transparency.

Crunchfish's layer-2 solution

Crunchfish's Layer-2 solution revolutionizes the payments landscape by augmenting traditional cash, card, and online payment methods. By rethinking how we handle online, offline, and cash payments, Crunchfish enables a seamless transaction experience that enhances resilience and adaptability.



With Crunchfish, transactions can be conducted on a layer-2 without sacrificing security or user experience. The solution incorporates layer-2 wallets, terminals, and gateways that allow users to make payments anywhere, anytime—whether connected to the internet or not.

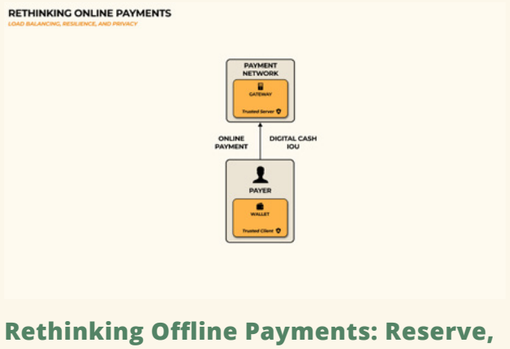
The Crunchfish Layer-2 solution helps merge the convenience of digital payments with the practicality of cash. Digital IOUs are used to facilitate secure transactions, ensuring that both merchants and consumers can trust the integrity of their payment methods. This also extends to interactions with various payment networks, allowing for comprehensive interoperability.

By utilizing an isolated runtime execution environment, Crunchfish ensures that payment data integrity during cryptographic operations, at rest on device, and in transit between clients and to servers. The certified high level of security builds trust in both online and offline environments, empowering users to transact confidently.

Crunchfish's revolutionary layer-2 solution can be implemented incrementally in an evolutionary way, one payment network, payment application, and end user at the time. The competitive business model is attractive for all participants and stakeholders, promoting broader adoption and financial inclusion. As we move forward in an increasingly digital economy, the Crunchfish Layer-2 solution stands as a pivotal tool for rethinking the way retail payments are processed, making the payment experience smarter, safer, and more resilient than ever before.

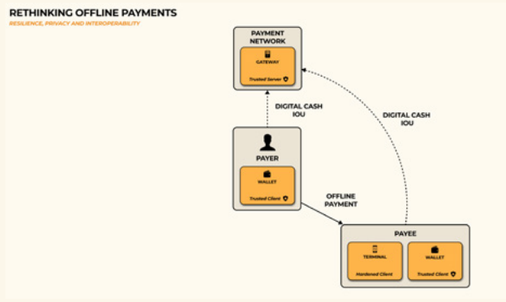
Rethinking Online Payments: Survivability in the Face of Failure – A Packet-Switched Approach

Just as the internet transformed digital communications in the 90's into a much more robust and resilient packet-switched approach introduces Crunchfish's patent-pending Trusted Application Protocol (TAP) resilience to the application layer of, for instance, digital payments by designing payment traffic with a packet-switched communication architecture inspired by the TCP/IP protocols that built the internet. TAP ensures that payment applications function reliably even during backend server failures or disrupted network conditions. TAP works across proximity protocols (QR code, Bluetooth, NFC) and remote protocols (internet or SS7 signaling), making it transport-layer agnostic, ensuring secure end-to-end communication between clients as well as between clients and servers. With private key in a trusted client in a PKI-based architecture, TAP ensures secure communications in between clients and between clients and servers using software-based isolated runtime execution environments by virtual secure elements in the clients, offering unmatched security and scalability for both offline and online environments.



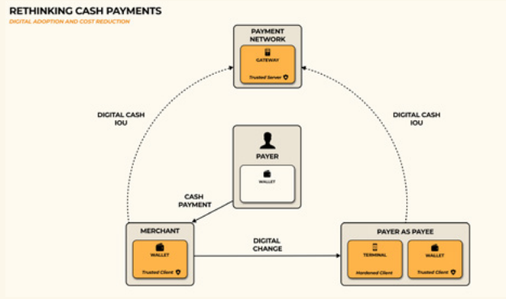
Rethinking Offline Payments: Reserve, Pay, and Settle with Digital IOUs

Built on a patented architecture, the Reserve, Pay, and Settle (RPS) model allows payment ecosystems to operate seamlessly offline by issuing Digital IOUs locally in trusted client devices. Crunchfish's signature offline payment solution enables digital payments to function even when disconnected from backend systems or the internet. Consecutive offline payments on layer-2 are also supported by Crunchfish Digital Cash Layer-2 solution. These IOUs are reconciled securely when connectivity is restored, ensuring trust, scalability and interoperability across domestic and international payment networks. The patented solution is payment network agnostic and even makes diverse payment networks interoperable regardless if it is real-time payment networks (e.g., UPI, Pix), card networks (e.g., Visa, Mastercard), CBDCs, mobile money, stable coins, other cryptocurrencies, or closed-loop payment systems.



Rethinking Cash Payments: Returning Change Digitally

By providing digital change instead of coins or small banknotes, merchants can solve this pain point while reducing operational inefficiencies and logistical overhead. Leveraging Crunchfish's offline payment technology, merchants sign Digital IOUs for returning exact change digitally, and customers only need offline terminals to receive the change. This decreases logistical challenges significantly surrounding coins and small denominations and reduces cash handling costs while simplifying the payment experience. It provides a natural fit for Central Bank Digital Currency (CBDC), allowing physical cash-backed change to be issued as CBDC.

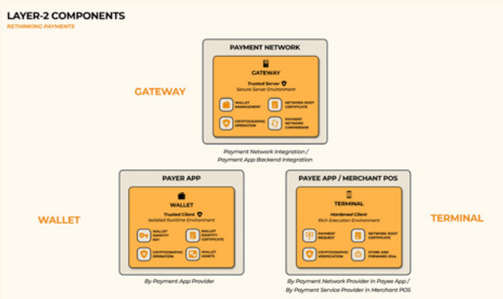


The Superior Approach

Crunchfish shows with its Digital Cash Layer-2 (L2) solution a viable way forward with its groundbreaking, modular, and packet-switched architecture that augments any Layer-1 (L1) payment system with multiple desired design objectives.

An L2 packet-switched architecture with wallets, terminals and gateways mitigates the inherent vulnerabilities in traditional L1 online payment systems. For online payments it provides resilience as well as load balancing as congestion can be avoided by batch processing during peak load. For offline payments, it brings many new use cases and for cash payments it enables return of change digitally.

The modular approach: The L2 solution respects the roles and responsibilities of payment networks and payment service providers respectively by clearly separating the L2 wallet, terminal and gateway modules. This brings flexibility, scalability, and healthy ecosystem competition.



The layered approach: An L2 solutions built on top of L1 payment systems provides multiple key design objectives, such as resilience, privacy, scalability, and interoperability, by enabling off-chain processing while still achieving reconciliation and settlement on the underlying L1 payment system. Any L1 Payment Networks can be augmented with a L2 solution. Hybrid architectures, e.g. a CBDC, card network or realtime payment system can be augmented by a L2 solution to achieve maximum scalability, security, and resilience.

The packet-switched approach: Integrating a packet-switched architecture for a payment network ensures survivability in the face of failure, which is especially important for high-volume payment networks as it brings load-balancing to overburdening centralized servers. Bringing packet-switching to the higher-level application layer is just as groundbreaking as when the internet delivered packet-switching to the underlying communication layer.

The privacy approach: Privacy should be offered for all payments, not just offline payments, by using banks and intermediaries to reconcile and pay for their end users by proxy. Offline use cases may provide complete anonymity if that is desired by the financial regulator.

The universal and interoperable approach: By augmenting an underlying L1 payment system with an L2 solution it may work across devices, proximity methods, geographies, and demographics as well as cross-systems, cross-networks, and also cross-borders.

The seamless approach: A hybrid payment system merges transactions that has been cleared offline in L2 with a subsequent L1 online settlement. The future of digital payments hinges on balancing cost, resilience, and seamless integration, bridging traditional infrastructure gaps while gearing solutions for next generation financial landscapes.

Digital Cash in India

India is the leading country when it comes to real-time payments. The Reserve Bank of India (RBI) and the National Payment Corporation of India (NPCI) are the two cornerstones of the Indian payment ecosystem. The Digital Rupee is one of the most advanced CBDC implementations globally and with 19,5 billion transactions in July, the Unified Payments Interface (UPI) is by far the largest real-time payment system in the world. Crunchfish has been focusing on India for over five years and has developed the Digital Cash products based on the needs and requirements in India.

Digital Rupee

During 2023, Crunchfish and IDFC FIRST Bank **signed a software license agreement** to integrate Digital Cash into the bank's payment apps. As part of the Reserve Bank of India's (RBI) Digital Rupee pilot, IDFC FIRST Bank upgraded its **Digital Rupee app** with support for Digital Cash functionality in Q4 2023. Digital Cash has been made available to IDFC FIRST Bank customers but is not yet interoperable with other Digital Rupee bank apps.

The RBI is preparing to expand the scope and usage of the Digital Rupee by building a more robust and interoperable infrastructure that enables all participating apps to receive offline payments. A key part of this involves integrating an Offline Receiving Component directly into the Digital Rupee payment rail, establishing offline functionality as a core feature of the ecosystem. On the issuing side, it is the responsibility of the banks and Third-Party Application Providers (TPAPs) to equip their end-users with wallets and the ability to pay offline. This will represent a huge market opportunity for Crunchfish.

Crunchfish and IDFC FIRST Bank are at the forefront of implementing and adopting this new architecture. As a result, Crunchfish have during Q2 deepened the partnership with IDFC FIRST Bank. With the Reserve Bank of India pushing for offline functionality and interoperability in the payment ecosystem, the existing software license agreement with IDFC FIRST Bank was extended for another two years, at the same commercial terms as when the initial contract was signed 2023. The extension of the Digital Cash agreement marks an important step toward scaling the solution, enabling significantly more users to pay offline with the Digital Rupee.

Currently 17 banks are participating in the pilot, offering Digital Rupee wallets to customers. In addition to IDFC FIRST Bank this includes major players such as SBI, HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, Yes Bank, Canara Bank, Union Bank, Bank of Baroda, IndusInd Bank, Punjab National Bank, Federal Bank, Karnataka Bank and Indian Bank. Also, non-bank payment platforms such as Google Pay, PhonePe, Amazon Pay, CRED, and MobiKwik, have been invited by RBI to participate in the Digital Rupee ecosystem, pending regulatory approvals. Crunchfish are in discussion with several of these banks and TPAPs for implementation of the new offline payment architecture. Besides IDFC FIRST Bank, Crunchfish expects to do early implementations with 1-2 other players, to prove the feasibility of the solution to NPCI. Once this is done, the entire market for Digital Rupee apps is open for Crunchfish.

Unified Payment Interface

Unified Payments Interface (UPI) is the world's most successful real-time payment system. UPI was launched in November 2016 and in July had a transaction volume of 19,5 billion transactions per month. NPCI, which is the product owner of UPI, announced at the Global Fintech Fest (GFF) in Mumbai in September 2024 that it plans for an increase in the coming years to 100 billion transactions per month. To achieve this, offline payments are important for load balancing, resilience, and coverage in areas where internet connectivity is spotty or non-existent.

The Offline Receiving Component infrastructure for the Digital Rupee is also highly relevant for UPI and is being considered between Crunchfish and NPCI, as part of the ongoing discussions. If fully implemented, Offline Receiving Component for UPI would enable an interoperable, more user friendly and secure offline solution than currently is available with UPI Lite X. At the same time, it would provide the same kind of business opportunity for Crunchfish, to provide offline wallet solutions to the many banks and TPAPs acting as UPI payment service providers. The software license agreement with IDFC FIRST Bank also covers the right for the bank to use Digital Cash on UPI. Similarly, the other banks Crunchfish is working with for the Digital Rupee will be offered to extend the license term to cover usage with UPI.

NPCI
भारतीय राष्ट्रीय भुगतान निगम
NATIONAL PAYMENTS CORPORATION OF INDIA

Digital Cash in the Rest of the World

Most of the world's central banks are evaluating or preparing to **launch CBDCs**. Support for offline payments is on the agenda for most of these projects. In August the International Monetary Fund (IMF) published a Fintech Note that examines technology solutions for enabling CBDC operations in environments with limited or no connectivity. A key take-away from the paper was that solutions using virtual secure elements, such as Crunchfish Digital Cash, are secure and scalable, whereas hardware-based solution are challenging to scale.

CBDC in the Rest of the World

The IMF published in August a Fintech Note, like many other papers that cover offline payments, the IMF Fintech Note focused mainly on wallet-to-wallet considerations but also gives a light touch to other aspects that determines how implementable a solution is in practice. The IMF Fintech Note did establish that offline payment solutions using virtual secure elements are secure and scalable, whereas hardware-based solutions are costly and challenging to distribute and upgrade.

Two of the co-authors of the IMF Fintech Note, have also published an add-on note that describes Crunchfish Digital Cash Layer-2 solution as a viable augmentation to any CBDC payment system with its novel packet-switched architecture delivered by a secure, scalable, interoperable, and cost-effective architecture.

Both these papers are well in line with the merits of Crunchfish Digital Cash as a layer-2 solution augmenting the underlying layer-1 CBDC payment system with desired features. It is designed to respect the roles and responsibilities of payment networks and service providers. Whereas payment service providers equip users with Wallets to initiate and make payments, payment networks need Terminals and Gateways to receive and accept payments. This clear separation allows for flexibility, scalability, and healthy market competition by ecosystem participants and protects the integrity of the CBDC payment system from Wallet transactions initiated off the central ledger.

The European Central Bank (ECB) is investing heavily in an offline payments project for the Digital Euro. Over 2 billion SEK is the estimated budget for the project. The ECB has chosen a solution where the security of offline payments is based on the use of hardware in the mobile phone. Just as IMF points out, Crunchfish also sees significant scalability risks with this approach because there is no existing ecosystem to distribute and update an offline payment application on hardware. Without an ecosystem where the solution can be distributed and updated, the solution will not be scalable to the wide range of mobile phones on the market.

ECB has also announced that they want to offer conditional payments with the Digital Euro and are fostering innovation through the ECB innovation platform. The platform simulates the envisaged digital euro ecosystem, in which the ECB provides

technical support and infrastructure for European companies to develop innovative digital payment features and services at European level. Crunchfish was one of almost 70 market participants that were selected by ECB to work with ECB to explore digital euro payment functionalities and use cases. During May, Crunchfish submitted demos of three offline payment use cases with online settlement, showcasing innovative implementations of digital euro conditional payments. The demos are using Crunchfish's patented offline payment with online settlement. Findings from the pioneer projects will be published by the ECB on the ECB website on 26 September, and will be officially presented at the conference The Future of Payments-CBDC, Digital Assets and Digital Capital Markets.

Crunchfish is in advanced discussions with an Eastern European central bank for a CBDC pilot. Crunchfish has teamed up with one of the dominating system integrators within CBDC implementations globally, and with a local technology provider. With this setup the consortium has a strong technical offering, including Crunchfish's unique offline solution, combined with experience form CBDC pilot projects and a strong local representation. The board of the central bank will be presented with the viable solutions and providers during Q3. Based on recommendations from the board, one consortium will be selected, and contractual arrangements will be initiated. The pilot is planned to start during the second half of 2025, but based on previous experiences it might also slide over to 2026.

Standards are critical for CBDC adoption because they ensure interoperability, security, and scalability across the payment ecosystem. By defining common technical and operational rules, all participants - banks, payment providers, merchants, and users - can transact seamlessly and securely, both online and offline. This shared foundation builds public trust, supports regulatory compliance, and enables innovation without fragmenting

the market. The Central Banking Standards Organization (CBSO) is a global non-profit committed to defining standards for central banking operations and technology. Embracing open source, open banking, and holistic principles, CBSO guides central banks effectively toward Central Banking 4.0 and interoperable, secure, and stable financial systems. **Crunchfish recently became sponsor of CBSO** to advance global CBDC standards.

An important opportunity for Crunchfish is commercial payment systems that facilitate a payment ecosystem. Several countries have a centralized payment switch that operates in real time, like UPI in India, which makes payment apps in the country interoperable with each other. Integrating an interoperable terminal module on the acquiring side in the payment ecosystem would have several advantages in terms of scalability, as much of the integration work would only need to be done once, compared to integrating with each of the payment service providers in the system.

Crunchfish is in advanced discussions with several national switches. One is a leading country in Africa where the Rethinking Payments concept resonates very well with their ambitions. They will start design, implementation and testing second half of 2025. Two workshops have been conducted during the summer to start this work. Crunchfish's new go-to market approach that enables a terminal module first with the payment network and then markets offline wallets to banks and TPAPs is very applicable here.

SaaS Expand Agency continues to develop the markets in Africa and South America, with focus on telecom operators and technology providers to them. Currently they are working with a new telecom operator that plans to enter several countries in Africa, starting with Kenya and Malawi. The operator sees offline support as a critical feature to win market share. Another interesting opportunity is with a technology provider in South America, with customers in 36 countries throughout South America and the Caribbean.

One night in Bangkok....

Our participation in the Digital Currency Conference in Bangkok marked an important milestone this quarter. Even though CEO Joachim Samuelsson only spent “one night in Bangkok,” the event left a strong impression. It generated significant interest, strengthened relationships with key stakeholders, and positioned Digital Cash firmly in front of an international audience. This success laid the foundation for the global expansion of event presence in the months ahead.

Crunchfish fresh thinking on offline payments that solutions have to respect the roles and responsibilities of payment networks and payment service providers respectively, received an overwhelming response from central bankers, commercial banks, technology providers, and payments experts at the Digital Currency Conference in Bangkok at the end of May. The payment industry overall is overdue for a transformative change into a packet-switched approach delivering survivability at the face of failure for transactions. The incumbent circuit-switched happy-flow where payments only works when everything works must be updated for better resilience.

Crunchfish deep fintech solution delivers by leveraging:

- Scalable trust in the client by means of a isolated runtime execution environment provided ny a patented virtual secure element by our partner V-Key.
- A patent pending agnostic transport protocol - TAP: Trusted Application Protocol - on the application level that appends any application message with a cryptographic signature that allows any entity offline or online to trust the message using PKI.
- A patented layer-2 Reserve, Pay, and Settle approach based conditional payments / smart contracts that makes the offine solution agnostic to the underlying payment network and ensure interoperability cross-service, cross-network as well as cross-border.

This has been Crunchfish’s patented approach to payments and offline payments all along. What has been missing was getting the go-to-market approach right. It is all about respecting the established roles and responsibilities in the payments industry. The payment service / application providers that serve end-users should implement Wallets to have sufficient trust in clients to be able to MAKE payments by connecting to the payment network either offline or online as today. The payment network provider, on the other hand, should make sure that the payment ecosystem of end-users and merchants can RECEIVE payments.

This is not a new idea in as it is exactly the way the card networks work. The payments industry gets it intuitively. Applying this model to offline payments is novel though as we and others have been trying to sell a whole offline payment system, when it should be broken up with a software-based Terminal kernel for the payment network provider, ensuring that ecosystem can RECEIVE offline payments, and a software-based Wallet for the payment service / application providers, ensuring that their end-users or merchants can MAKE payments.

The presenttion in Bangkok was made into **a whitepaper that we released in May** and it is also accessible on our homepage under the menu **Rethinking Payments**. **Another whitepaper was released at the end of June** which describes our solution more in detail and with a feature-by-feature comparison with real-time payment systems, mobile card payments, smartcards, and CBDC systems. Crunchfish solution excels on all aspects – security, scalability, resilience, privacy, interoperability, universality, seamlessness, and cost effectiveness. This whitepaper is also presented under the menu **Deep Fintech** on our homepage. The landing page of our homepage has also been updated with **an introductory overview of how Crunchfish is rethinking payments for** online, offline, and cash.

....and the world's your oyster

Our participation in Bangkok was a great success, even if it was just "One night in Bangkok" for our CEO Joachim Samuelsson it showed that the world's our oyster. The Digital Currency Conference demonstrated strong interest in Digital Cash and provided valuable international exposure. Building on this momentum, we will expand our presence throughout the fall at several leading industry events. From Nassau and Bali to Frankfurt, Mumbai and Miami, we will continue to showcase our technology on the global stage. What began as a hit in Bangkok now grows into a season of opportunities to connect, expand and deliver.

2025-08-29

Financial Meetings Malmö

CEO Joachim Samuelsson will present on the topic of Rethinking Payments at the discussion session.

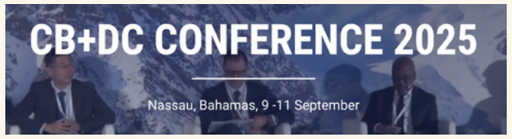
2025-09-29

Sibos Frankfurt

Crunchfish will exhibit Digital Cash and arrange a fireside chat with invited guests where CEO Joachim Samuelsson also will participate. The fireside chat will discuss Rethinking Payments.

2025-09-09

CB+DC Conference Nassau



Crunchfish will exhibit Digital Cash and CEO Joachim Samuelsson will present on the topic of "Rethinking Payments - Respecting Roles and Responsibilities in the Payment Ecosystem" at a plenary session and participate in a panel discussion about Interoperability & Standardization.

2025-10-07

Global Fintech Fest Mumbai

Crunchfish will exhibit Digital Cash. CEO Joachim Samuelsson will participate in a panel discussion about "Global, Instant, Trusted: What the Next Billion Users Will Expect from Finance".

2025-09-22

The Asia Cash Cycle Seminar Bali

Crunchfish will exhibit Digital Cash and CEO Joachim Samuelsson will present Rethinking Cash Payments at a plenary session.

2025-11-03

The Americas Cash Cycle Seminar Miami

Crunchfish will exhibit Digital Cash and CEO Joachim Samuelsson will present Rethinking Cash Payments at a plenary session.

A Detailed Payment System Comparison

Legacy systems like EMVCo card payments and Account-to-Account Real-Time Payment system dominate in online contexts. Next generation payment networks will include additional features such as resilience which is lacking in these payment systems. CBDC implementations aims to address shortcomings with offline payments, but many suggested solutions fail to deliver as they are challenging to implement in practice. Crunchfish Digital Cash solution is the most well-rounded, future-proof solution, excelling across solution design, security, and implementation. Payment networks should implement hybrid architectures augmented with Crunchfish Digital Cash layer-2 solution to meet the demands of modern payment systems.

Payment systems augmented with Crunchfish Digital Cash layer-2 solution promises new possibilities, especially with added resilience, interoperability and privacy implemented in a secure, scalable and cost-efficient way. This section compares five payment systems:

1. Real-Time Payment (RTP) in Mobile Devices
2. EMVCo XPay Host Card Emulation in Mobile Devices
3. EMVCo Bank Issued Smartcards
4. Crunchfish Digital Cash Layer-2 (L2) solution in Mobile Devices and Smartcards
5. CBDC Layer-1 (L1) systems in Mobile Devices and Smartcards

The design, security and implementation of these payment systems are analyzed in detail in the matrix below and then ranked in three solution categories:

1. System Design
2. System Security
3. System Implementation

This chapter presents also an analysis on eight key design objectives and present a best practice on each design objective and an overall top performer:

1. Security
2. Scalability
3. Resilience
4. Privacy
5. Universality
6. Interoperability
7. Seamlessness
8. Cost

SYSTEM OPTIONS:	Real-Time Payment on Mobile Device	EMVCo Xpay HCE on Mobiles	EMVCo Bank Issued on Smartcard	Crunchfish Digital Cash on Mobiles or Smartcard	CBDC Solution on Mobiles or Smartcard
SYSTEM DESIGN					
Online Payment	Yes	Yes	Yes	Yes	Yes
Offline Payment	No	Few MCC only	Yes	Yes	Yes
Resilience	Low	Low	Medium	High	Medium
Load Balancing Online	Low	Low	Medium	High	Low
Digital IOU	Yes	Yes	Yes	Yes	No, Digital Banknote
Reservation Online	No	No	No	Yes	No
Online Settlement	Yes	Yes	Yes	Yes	No
Credit Risk in store	Online only	Floor limit	Floor limit	No	No
Data-in-Transit Integrity	Online only	Online only	If SE in Terminal	Yes by TAP	Yes by Digital Token
Network Interoperability	RTP only	Card networks only	Card networks only	Yes	Single CBDC only
Layer 1 Solution	Yes	Yes	Yes	Possible	Yes
Layer 2 Solution	No	No	No	Yes	No
Wallet to Wallet (W2W) Payments	No	No	No	Yes	Yes
Wallet to Terminal (W2T) Payments	No	Yes	Yes	Yes	No
Consecutive Offline Payments	No	No	No	Yes	Yes
Programmable Money	No	No	No	Yes	Yes
Programmable Payments	No	No	No	Yes	Online only
Use Case Flexibility	Medium	Medium	Low	High	Low
Payment Privacy	Low	Low	Low	High	Medium
Bank Driven Privacy	Yes	Yes	Yes	Yes	No
System Driven Privacy	Yes	Yes	Yes	Possible	Yes
Payment Anonymity	No	No	No	Possible	Possible
Digital Banknote Privacy	No	No	No	No	Yes
SYSTEM SECURITY					
Isolated Runtime	No	No	Yes	Yes	Yes
Runtime Execution Environment	SW (REE)	SW (REE) and HW SE	HW SE	SW (Virtual SE) or HW SE	HW SE
Rollback Protection	N/A	No	N/A	Yes	N/A for SE, No for TEE
Secure Time	No	No	Yes	Yes	No
Double-Spending Risk	Low as Online Only	Low Online	Low	Medium as Offline Also	Medium as Offline Also
Quantum Safe	Possible	Possible	Possible	Possible	Possible
Bank Reconciliation	Yes	Yes	Yes	Yes	No
Central Reconciliation	Yes	Yes	Yes	Possible	Yes
Detect Fradulent Wallets Online	Yes	Yes	Yes	Yes	Yes
Wallet Upgrade Ecosystem	Yes	XOEM only	Yes	Yes	No
Transaction Cost	Medium P2M	High	High	No or Low	No or Low
SYSTEM IMPLEMENTATION					
Wallet Distribution Ecosystem	Yes	XOEM only	Yes	Yes	No
Wallet Scalability	Yes	Yes	Yes	Yes	No
Wallet Configurability	High	Medium	Low	High	Low
Multiple Device Form Factors	No	Yes	Yes	Yes	Yes
Implementation Complexity	Low	Medium	High	Medium	High
Wallet Cost	Low	Medium	High	Low	High
Proximity Methods	QR	NFC	NFC	QR, BLE, NFC, Multi-modal	NFC
Terminal Distribution Ecosystem	Yes	Yes	Yes	Yes	No
Terminal Upgrade Ecosystem	Yes	Yes	Yes	Yes	No
Terminal Scalability	Yes	Yes	Yes	Yes	No
Terminal Configurability	High	Medium	Medium	High	Low
Multiple Terminal Form Factors	No	No	No	Yes	Yes
Implementation Complexity	Low	Medium	Medium	Low	High
Terminal Cost	No or Low	Medium	Medium	No or Low	High
Isolated Runtime in Terminal	No as online only	Preferred	Preferred	No	Yes as W2W only
Open Solution	Commercial platforms	EMVCo standard	EMVCo standard	Proprietary and Patented	Proprietary and Patented

Figure: Detailed analysis of design, security, and implementation aspects of five payment systems. Entries in green are positive, yellow neutral, and red are negative aspects for the payment systems.

Ranking of System Design, Security and Implementation

This ranking reinforces Crunchfish Digital Cash L2 solution as the most well-rounded, future-proof solution, excelling across solution design, security, and implementation. While legacy systems like EMVCo and RTP retain their relevance in online contexts, CBDCs and hybrid L2 implementations promise new possibilities, especially with added resilience and privacy configurability. Payment networks should prioritize hybrid architectures that blend online scalability with offline survivability to meet the demands of modern payment systems.

System Design	System Security	System Implementation
System design evaluates the scalability, resilience, privacy, programmability, and flexibility of the system.	System security evaluates the system's ability to protect against fraud, and ensure data integrity in operation, at rest, and in transit.	System implementation evaluates wallet distribution and upgrade system, scalability, infrastructure complexity, terminal integration, and associated costs.
1st Place: Crunchfish Digital Cash L2 solution	**1st Place: Crunchfish Digital Cash L2 solution**	**1st Place: Crunchfish Digital Cash L2 solution**
- Reasons: Crunchfish Digital Cash L2 solution excels in its hybrid approach, implementing a L2 solution that supports both online and offline payments. Its use of a packet-switched architecture allows for highly resilient and scalable operations, with configurable privacy and programmable features that support use-case flexibility such as Wallet-to-Wallet (W2W) and Wallet-to-Terminal (W2T) payments. Additionally, it enables consecutive offline payments, an essential feature in environments with poor connectivity.	- Reasons: Crunchfish Digital Cash provides very high security through cryptographic signing, rollback protection, secure time mechanisms, and fraud-resistant offline payments in isolated runtime execution environment. By online settlement it leverages distributed core banking systems for detection of fraudulent offline wallets.	- Reasons: Crunchfish Digital Cash stands out in implementation due to its low-cost scalability and reliance on existing infrastructure (e.g., smartphones, wallets, terminals). Its lightweight L2 solution reduces complexity, while multi-modal proximity methods (QR, NFC, BLE) enhance both wallet and terminal reach. Importantly, it does not require specialized terminal hardware or device ecosystems.
- Advantages: High scalability, support for hybrid online/offline architecture, configurable privacy, programmability, and support for multiple proximity methods (QR, NFC, BLE, multi-modal).	- Advantages: Strong cryptographic operations, effective fraud mitigation, and reliable offline security mechanisms in packet-switched approach provides data integrity in operation, at rest, and in transit.	- Advantages: Affordable, scalable, highly configurable across mobile devices and terminals.
2nd Place: CBDC L1 Systems	**2nd Place: CBDC L1 Systems**	**2nd Place: Real-Time Payment (RTP)**
- Reasons: CBDC systems offer scalability and programmability at the national level, making them a strong candidate for real-world deployment. However, their centralized nature hinders offline resilience and introduces greater implementation complexity. Privacy in CBDCs is configurable but policy-dependent, which can limit flexibility based on desired use cases.	- Reasons: CBDC systems benefit from being directly issued by central banks, ensuring high institutional trust and security. With proper implementation (e.g., quantum-safe cryptography and secure tokens), they deliver exceptional security. However, they remain fundamentally dependent on centralized infrastructure, which poses risks during network disruptions.	- Reasons: RTP systems score relatively high on implementation due to low-complexity and low-cost infrastructures, especially for wallet design. Leveraging QR codes and phone-based transactions, RTP systems minimize dependency on specialized terminals or devices, making them cost-effective for real-time online payments.
- Advantages: Strong programmability and scalability for real-time online systems. Configurable privacy aligns with compliance for KYC and AML regulations.	- Advantages: Centralized trust and future-proof cryptographic mechanisms.	- Advantages: Low initial infrastructure cost and simple integration with mobile ecosystems.
3rd Place: EMVCo XPay (HCE)	**3rd Place: EMVCo Bank Issued ICC Cards**	**3rd Place: EMVCo XPay (HCE)**
- Reasons: XPay systems like Apple Pay and Google Pay have solid solution designs for specific use cases (e.g., retail payments), leveraging NFC-based proximity methods. However, they generally lack offline capabilities and configurability for broader use-case flexibility.	- Reasons: ICC Cards offer robust physical tamper resistance and cryptographic protections. However, limitations in offline fraud mitigation and static terminal reliance reduce their overall ranking in dynamic use cases.	- Reasons: XPay systems rely on OEM device manufacturers like Apple, Google, or Samsung creating barriers for scalability and distribution. High dependency on proprietary ecosystems (e.g., phones with NFC hardware) reduces implementation flexibility, while terminal costs remain moderate.
- Advantages: Seamlessness in online use cases and reasonable scalability. However, the system is highly platform-dependent (tied to device manufacturers) and lacks resiliency for offline payments.	- Advantages: Reliable in traditional retail scenarios with established security protocols (e.g., PINs, EMV standards).	- Advantages: Simple configuration for end users but restricted to specific platforms and terminal compatibility.
4th Place: EMVCo Bank Issued ICC Cards	**4th Place: EMVCo XPay (HCE)**	**4th Place: EMVCo Bank-Issued ICC Cards**
- Reasons: Traditional cards are well-established globally, providing solid interoperability and scalability in online retail ecosystems. However, their low configurability, lack of programmability, and limited offline flexibility place them low in terms of design innovation.	- Reasons: XPay systems utilize Secure Elements (SEs) and encryption to ensure secure transactions within proprietary platforms. However, dependence on centralized cloud-based validation and app ecosystems introduces vulnerabilities, particularly in offline environments.	- Reasons: Implementation requires high-cost infrastructure, including card issuance, terminals, and maintenance of bank-specific networks. While ICC cards dominate in physical retail environments, scalability into purely digital or hybrid spaces is limited.
- Advantages: Suitable for standardized retail payments, especially for physical environments, but lacks a path forward for cash-like functions required in modern financial ecosystems.	- Advantages: High-level encryption at the device level makes XPay systems relatively secure for retail use cases but not for resilience-demanding environments.	- Advantages: Ubiquitous in retail and reliable for physical terminals, but implementation complexity is high.
5th Place: Real-Time Payment (RTP)	**5th Place: Real-Time Payment (RTP)**	**5th Place: CBDC L1 Systems**
- Reasons: While RTP performs well in real-time online payment contexts, it lacks programmability, resilience, and offline operability. It is deeply tied to centralized infrastructure, which makes it less flexible compared to more distributed and hybrid alternatives.	- Reasons: While RTP systems ensure security through centralized verification, their lack of offline fraud prevention leaves them vulnerable to systemic attacks and network dependencies. Additionally, having no secondary support reduces protection in payment contexts requiring redundancy.	- Reasons: Centralized CBDC systems typically involve high implementation costs, requiring substantial national infrastructure development, terminal upgrades, and wallet design. As central banks issue CBDCs, governance and distribution complexities further complicate implementation.
- Advantages: Works exceptionally well for connected, high-volume transactions but fails in environments requiring hybrid designs or privacy.	- Advantages: Strong for centralized, always-connected use cases but weak in resilience.	- Advantages: Strong scalability for real-time connected payments but burdensome in terms of infrastructure and operational overhead.

Overall Ranking:

1. Crunchfish Digital Cash L2 solution: Excels in all categories — solution design, security, and implementation — by providing a scalable, resilient, and cost-effective L2 hybrid architecture suitable for both online and offline payments.

2. CBDC L1 Systems: Strong in solution design and security but falters under implementation complexity and cost. Incorporating L2 hybridization with Crunchfish would greatly enhance CBDC performance.

3. EMVCo Bank Issued ICC Cards: Reliable for traditional transaction environments, yet constrained by limited configurability and high implementation costs in the evolving financial ecosystem.

4. EMVCo XPay (HCE): Performs moderately across all categories but lacks the scalability, resilience, and configurability needed for future-proof designs.

5. Real-Time Payment (RTP): Great for real-time transactional volumes in connected environments but lags in offline resilience, programmability, and advanced features necessary for hybrid ecosystems.

Analysis and Best Practise Ranking for Eight Key Design Objectives

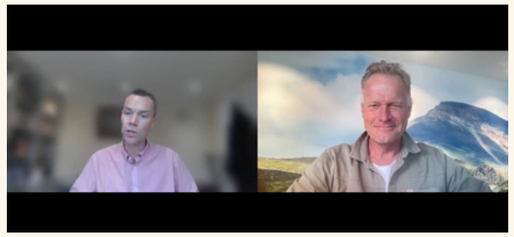
Crunchfish Digital Cash L2 solution is the overall top performer as it leads across all dimensions: Security, Scalability, Resilience, Privacy, Universality, Interoperability, Seamlessness, and Cost. Its hybrid design integrating L2 offline operations and scalable L1 online settlement reconciliation makes it both robust and cost-effective.

Design Objectives	Definition	Analysis	Recommendation
Security	Assesses the strength of measures protecting payment solutions against fraud, unauthorized access, tampering, and data breaches. Includes encryption standards, runtime isolation, rollback protection, and quantum-safe mechanisms.	Security is paramount for safeguarding transactional data. Solutions like Crunchfish Digital Cash and CBDC solutions excel due to device isolated runtime execution environments and systemic quantum-safe cryptography. EMVCo ICC and XPay rely heavily on hardware like Secure Elements (SEs), which offer substantial protection but limit scalability and universality, while RTP systems struggle due to no support for offline use cases and resilience issues.	***Crunchfish Digital Cash L2 solution and CBDC L1 systems***
Scalability	Evaluates the ability of payment solutions to process increasing transaction volumes and expand infrastructure without performance degradation. Includes online and offline scalability.	Crunchfish Digital Cash leads scalability due to its L2 design, enabling offline transactions and asynchronous reconciliation for virtually infinite payment streams. RTP performs well for strictly online high-frequency payments. EMVCo (cards and XPay) and CBDCs have scalability issues when offline operability is required.	***Crunchfish Digital Cash L2 solution***
Resilience	Reflects the ability of payment systems to withstand systemic failures, including offline operability and continued functionality during network, power and server outages.	Only Crunchfish Digital Cash achieves very high resilience by its packet-switched architecture and allowing consecutive offline payment cycles, ensuring operability during systemic failures. CBDC solutions fare moderately well but typically depend heavily on centralized backend systems for reconciliation. Other solutions (RTP, XPay, and EMVCo ICC) suffer due to their reliance on online infrastructure.	***Crunchfish Digital Cash L2 solution***
Privacy	Examines how well the payment system protects users' transactional data from exposure, ensuring anonymity or configurable privacy settings.	Crunchfish Digital Cash offers configurable privacy, balancing user anonymity for low-value payments with traceability for regulatory requirements. CBDC solutions may match this with privacy thresholds driven by central bank policies, but token/account-based designs need careful planning. Other systems have inherent traceability due to online network dependencies.	***Crunchfish Digital Cash L2 solution and CBDC L1 system***
Universality	Measures acceptance and compatibility across geographies, populations, and device types, including accessibility in low-tech or underbanked environments.	Universal acceptance across devices and environments makes Crunchfish Digital Cash a leader. Supporting multiple proximity methods (QR, BLE, NFC, ultrasound) ensures it adapts to diverse infrastructure. CBDC solutions could achieve similar universality but rely heavily on centralized policies and NFC proximity methods.	***Crunchfish Digital Cash L2 solution***
Interoperability	Refers to the solution's ability to integrate across platforms, devices, and networks to ensure seamless cross-system compatibility.	Interoperability is critical for cross-network operation. Crunchfish Digital Cash excels due to its agnosticism to layer-1 infrastructure, while CBDCs struggle with domestic-only designs (though interoperability could improve with cross-border integration). The other payment system struggle also as being closed payment networks.	***Crunchfish Digital Cash L2 solution***
Seamlessness	Indicates how frictionless the interaction is between online and offline payment systems, balancing user experience and technical integration across hybrid contexts.	Systems integrating online and offline payments without friction—Crunchfish Digital Cash—achieve excellence. Other solutions fail to deliver seamless transitions, particularly in offline contexts.	***Crunchfish Digital Cash L2 solution***
Cost	Evaluates cost efficiency in terms of implementation complexity, hardware/software requirements, wallet/terminal and transactional expenses, and operational scalability relative to each solution.	Cost efficiency is dominated by Crunchfish Digital Cash, which minimizes hardware/software dependencies while achieving scalability, privacy, and resilience. RTP and EMVCo XPay maintain medium costs, while cards (EMVCo ICC) and CBDCs suffer from much higher infrastructure expenses.	***Crunchfish Digital Cash L2 solution***

The future of digital payments hinges on balancing cost, resilience, and seamless integration, bridging traditional infrastructure gaps while gearing solutions for next-generation financial landscapes. The way forward is the novel packet-switched architecture delivered by the modular Crunchfish Digital Cash L2 solution that augments any payment network with multiple desired design objectives.

Significant news during and after Q2

2025-08-21
Crunchfish gets Industry validations of its way of rethinking payments.



2025-08-08
Crunchfish Digital Cash was featured in an IMF Fintech Note and follow-up note from two of the co-authors.

2025-07-29
Crunchfish became sponsor of CBSO to advance global central banking standards.

2025-07-23
Crunchfish announced validation of its fundamental Digital Cash patent in Europe.

2025-07-11
Crunchfish received patent in Taiwan for Fundamental Offline Payment Innovation.

2025-07-02
Crunchfish provided a high-level description of its modular, packet-switched, layer-2 approach to payments.

2025-06-25
Crunchfish presented a new white paper on the topic Resilience, Privacy, and Other Key Design Objectives in CBDC and Commercial Payment Networks and Applications – A Groundbreaking Packet-Switched Layer-2 Approach.

2025-06-18
Crunchfish CEO Joachim Samuelsson was featured in the P.I.T. Exchange Podcast by Currency Research.

2025-06-05
Crunchfish introduced new tagline: Rethinking Payments – Redefining the Future of Payments Across Online, Offline, and Physical Cash Ecosystems.

crunchfish
RETHINKING PAYMENTS

2025-06-05
Crunchfish solved key pain point of physical cash handling with patented Digital Cash Solution.

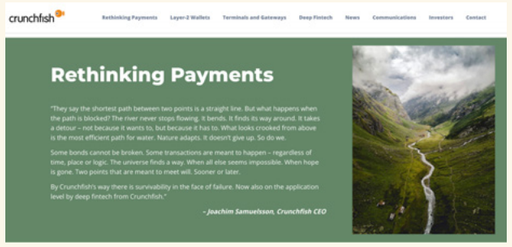
2025-06-02
Crunchfish announced the result of the exercise of warrants series TO11.

2025-06-02
Crunchfish received a Final Notice from the Swedish Patent Office (PRV) for a privacy and interoperable offline payment innovation.

2025-05-27
Crunchfish unveiled the white paper titled Rethinking Offline Payments: A Groundbreaking Ecosystem Approach.

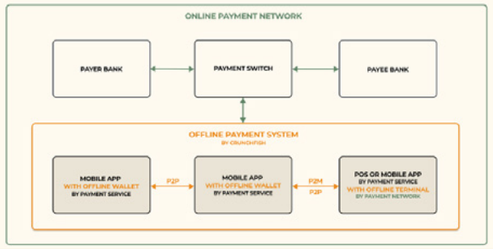
2025-05-23
Crunchfish receives Decision to Grant for its initial fundamental offline payment innovation in Europe.

2025-05-21
Crunchfish redesigned the Digital Cash Web Section on its website to highlight the interoperable offline wallet and terminal infrastructure.



2025-05-21
Crunchfish published the 2025 Q1 report, and held a webinar in Swedish about it, where Crunchfish CEO Joachim Samuelsson was interviewed by Johan Widmark, Equity Research Analyst from Emergers.

2025-05-21
Crunchfish launches Offline Terminal Infrastructure for payment networks.



2025-05-05
Crunchfish pioneers offline payments with online settlement in ECB innovation platform.

2025-04-15
Crunchfish published the 2024 annual report, and held a webinar in Swedish about it, where Crunchfish CEO Joachim Samuelsson was interviewed by Johan Widmark, Equity Research Analyst från Emergers.

Financials

Sales and earnings for the quarter

Net sales amounted to SEK 156 (432) thousand for the second quarter and operating expenses amounted to SEK 8,188 (13,166) thousand. Operating costs have decreased as a result of the closure of the gesture interaction business. EBITDA for the period amounted to SEK -4,583 (-5,867) thousand. Loss before tax for the second quarter amounted to SEK -5,071 (-7,935) thousand and has been charged with amortization of intangible assets of SEK 391 (710) thousand and tangible fixed assets of SEK 65 (76) thousand and with impairment om of intangible assets of SEK 0 (1,286) thousand.

Sales and earnings for the half year

Net sales amounted to SEK 441 (2,097) thousand for the period and operating expenses amounted to SEK 16,164 (25,977) thousand. Net sales have decreased due to a one-time agreement in the gesture interaction business in the first half of 2024. Operating costs have decreased as a result of the closure of the gesture interaction business. EBITDA for the period amounted to SEK -9,134 (-9,787) thousand. Loss before tax for the period amounted to SEK -10,179 (-14,190) thousand and has been charged with amortization of intangible assets of SEK 806 (1,451) thousand and tangible fixed assets of SEK 129 (197) thousand and with impairment om of intangible assets of SEK 0 (2,793) thousand.

Investments

During the second quarter, the Group invested SEK 2,308 (4,159) thousand in intangible fixed assets and SEK 0 (0) thousand in tangible fixed assets.

During the first half year, the Group invested SEK 4,381 (8,423) thousand in intangible fixed assets and SEK 0 (0) thousand in tangible fixed assets.

Liquidity and financing

At the end of the second quarter the Group's cash and cash equivalents amounted to SEK 13,175 (12,503) thousand. Cash flow from operating activities during the second quarter amounted to SEK -3,958 (-5,247) thousand.

Staff

As of June 30, 2025, the number of employees was 13 (21).

Risks and uncertainties

A number of different risk factors could impact Crunchfish's operations and industry negatively. It is therefore very important to consider relevant risks in addition to the Company's growth opportunities. Relevant risks are presented in the prospectus issued by Crunchfish AB in November 2024 and the annual report for FY 2024, which can be found at crunchfish.com.

Related party transactions

Company management and administrative staff are employed in the parent company Crunchfish AB. Reported sales in the parent company consists of income from services rendered for management and administration of the company's two subsidiaries.

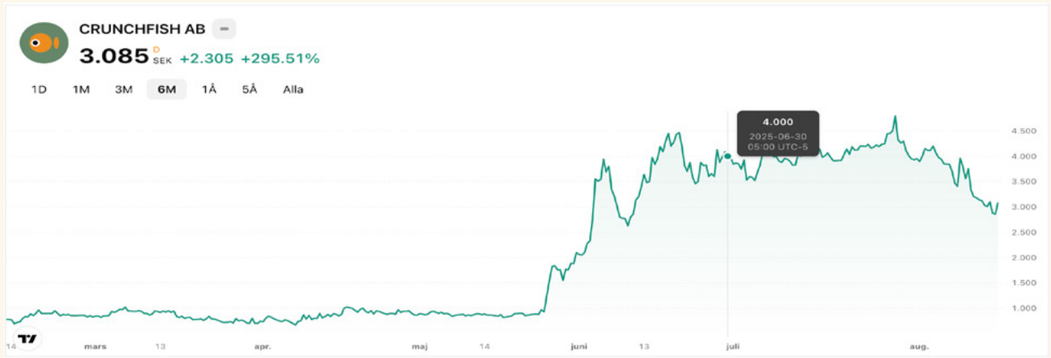
Sales and earnings for the quarter, parent company

The parent company's net sales amounted to SEK 3,739 (4,146) thousand for the second quarter and operating expenses to amounted to SEK -4,310 (-4,883) thousand. EBITDA for the period amounted to SEK 72 (-115) thousand. During the second quarter, the parent company invested SEK 0 (0) thousand in intangible fixed assets and SEK 0 (0) thousand in tangible fixed assets.

Sales and earnings for the half year parent company

The parent company's net sales amounted to SEK 7,126 (8,319) thousand for the period and operating expenses to amounted to SEK -8,176 (-9,405) thousand. EBITDA for the period amounted to SEK 181 (119) thousand. During the period, the parent company invested SEK 0 (0) thousand in intangible fixed assets and SEK 0 (0) thousand in tangible fixed assets.

Share price development during 6 months



Major shareholders for Crunchfish AB (publ) as of June 30th 2025

Name	Number of shares*	Share %
Corespring Invest AB (Chairmain Göran Linder)	13 849 730	18.76%
CEO Joachim Samuelsson incl. 50% owned company holdings	7 750 000	10.50%
Nowo Global Fund	4 449 981	6.03%
Nordic Underwriting ApS	2 118 680	2.87%
Mats Kullenberg incl. company holdings	1 666 549	2.26%
Agartha AB	1 500 000	2.03%
Granitor Invest AB	1 259 269	1.71%
Lars Andreasson and family holdings	1 150 000	1.56%
Carlquist Holding AB	900 000	1.22%
Mikael Kretz incl. company holdings	760 000	1.03%
Total 10 largest shareholders	**35 404 209**	**47.95%**
Other shareholders (approx. 5 000)	**38 438 682**	**52.05%**
Total	**73 842 891**	**100.00%**

**The number of shares is estimated based on information from Euroclear and shareholders.*

Financial calendar

Crunchfish AB publishes financial reports after each quarter. Upcoming reports are planned to be published according to the schedule below:

Half-year report 2025
August 22nd, 2025, 8:30 am CET

Interim report Q3 2025
November 13th, 2025, 8:30 am CET

Year-end report 2025
February 12th, 2026, 8:30 am CET

Accounting principles

This report has been drafted according to the Annual accounts act (Årsredovisningslagen) and BFNAR 2012:1 (K3).

Auditor's review

This report has not been subject to review by the company's auditor.

Company information

Crunchfish AB (publ), corporate registration number 556804–6493, is a limited company seated in Malmö, Sweden.

Certified Adviser

Västra Hamnen Corporate Finance AB is the company's Certified Adviser.
E-mail: ca@vhcorp.se
Phone: +46 40 200 250

Further information

For further information, please contact:
Joachim Samuelsson, CEO
ir@crunchfish.com
Crunchfish AB (publ)
Stora Varvsgatan 6A
211 19 Malmö

Statement by the Board of Directors and the CEO

The Board of Directors and the CEO hereby assures that this interim report gives a fair overview of the company's operations, financial status, and result.

Malmö, August 22nd, 2025

The Board of Directors:
Göran Linder (Chairman)
Susanne Hannestad
Joachim Samuelsson (CEO)
Malte Zaunders

This information is information that Crunchfish AB is obliged to publish in accordance to the EU Market Abuse Regulation. The information was provided by the contact person above for publication on August 22nd, 2025.

Financial report

Group income statement (SEK)

	Q2 2025	Q2 2024	Q1-Q2 2025	Q1-Q2 2024	2024
Operating income					
Net sales	156 262	431 893	441 436	2 097 231	2 933 125
Own work capitalized	2 307 904	4 159 236	4 380 882	8 423 407	12 708 120
Other operating income	685 600	635 467	1 272 243	1 228 029	2 393 788
Total operating income	**3 149 766**	**5 226 596**	**6 094 561**	**11 748 667**	**18 035 033**
Operating expenses					
Other external expenses	-3 505 153	-4 579 310	-6 227 130	-8 753 671	-15 717 962
Personnel expenses	-4 227 685	-6 428 036	-9 002 194	-12 712 960	-23 249 122
Depreciation and impairment of tangible and intangible fixed asset	-455 327	-2 071 883	-934 643	-4 441 362	-5 386 783
Other operating expenses	0	-86 386	0	-86 386	-86 386
Gain/loss from participations in associated companies	0	0	0	17 230	17 230
Total operating expenses	**-8 188 165**	**-13 165 615**	**-16 163 967**	**-25 977 149**	**-44 423 023**
Operating profit	**-5 038 399**	**-7 939 019**	**-10 069 406**	**-14 228 482**	**-26 387 990**
Financial items					
Other interest income and similar profit items	372	28 986	-1 236	79 919	155 214
Interest expense and similar loss items	-32 504	-24 583	-108 577	-41 036	-214 230
Profit or loss from financial items	**-32 132**	**4 403**	**-109 813**	**38 883**	**-59 016**
Profit or loss after financial items	**-5 070 531**	**-7 934 616**	**-10 179 219**	**-14 189 599**	**-26 447 006**
Profit or loss before tax	**-5 070 531**	**-7 934 616**	**-10 179 219**	**-14 189 599**	**-26 447 006**
Taxes					
Tax on income for the period	0	0	0	0	-78 774
Profit or loss for the period/year	**-5 070 531**	**-7 934 616**	**-10 179 219**	**-14 189 599**	**-26 525 780**
Key figures					
EBITDA	-4 583 072	-5 867 136	-9 134 763	-9 787 120	-21 001 207
Earnings per share	-0.07	-0.20	-0.16	-0.36	-0.60
Number of shares, average	68 301 466	39 646 906	64 242 184	39 646 906	44 112 423
Number of shares at balance sheet date	73 842 891	39 646 906	73 842 891	39 646 906	57 508 974
Earnings per share after full dilution	-0.07	-0.20	-0.16	-0.36	-0.60
Number of shares after full dilution, average	77 433 172	41 059 706	76 888 827	41 059 706	49 923 224
Number of shares after full dilution, balance sheet date	80 822 891	41 059 706	80 822 891	41 059 706	76 628 676

Group balance sheet (SEK)

	Jun 30, 2025	Jun 30, 2024	Dec 31, 2024
Assets			
Fixed assets			
Intangible assets			
Capitalized expenses for development work	37 242 871	30 312 448	33 779 659
Total intangible fixed assets	**37 242 871**	**30 312 448**	**33 779 659**
Tangible fixed assets			
Equipment	776 273	1 035 941	906 372
Total tangible fixed assets	**776 273**	**1 035 941**	**906 372**
Total fixed assets	**38 019 144**	**31 348 389**	**34 686 031**
Current assets			
Current receivables			
Account receivables	121 720	389 186	329 212
Other receivables	1 975 768	1 717 417	1 615 856
Prepayments and accrued income	1 233 426	1 723 955	1 057 877
Total current receivables	**3 330 914**	**3 830 558**	**3 002 945**
Cash and bank balances			
Cash and bank balances	13 175 238	12 503 395	17 276 249
Total cash and bank balances	**13 175 238**	**12 503 395**	**17 276 249**
Total current assets	**16 506 152**	**16 333 953**	**20 279 194**
Total assets	**54 525 296**	**47 682 342**	**54 965 225**

Group balance sheet cont. (SEK)

Equity and liabilites	**Jun 30, 2025**	**Jun 30, 2024**	**Dec 31, 2024**
Equity			
Equity attributable to parent company shareholders			
Share capital	3 396 773	1 823 758	2 645 414
Other contributed capital	348 039 895	318 472 506	339 097 900
Other capital including profit or loss for the period	-304 759 282	-282 243 883	-294 580 064
Total equity	**46 677 386**	**38 052 381**	**47 163 250**
Long-term liabilities			
Lease liabilities	356 903	857 381	754 498
Total long-term liabilities	**356 903**	**857 381**	**754 498**
Current liabilities			
Lease liabilities	500 478	197 525	202 994
Accounts payable	788 698	1 191 805	642 794
Other liabilities	953 899	849 530	810 044
Accrued expenses and accrued income	5 247 932	6 533 720	5 391 645
Total current liabilities	**7 491 007**	**8 772 580**	**7 047 477**
Total equity and liabilities	**54 525 296**	**47 682 342**	**54 965 225**
Key Figures			
Equity-assets-ratio	85.6%	79.8%	85.8%
Debt-to-equity ratio	1.8%	2.8%	2.0%
Interest-bearing net debt	n/a	n/a	n/a

Changes in the group equity (SEK)

	Q2 2025	Q2 2024	Q1-Q2 2025	Q1-Q2 2024	2024
Equity at beginning of period/year	46 347 654	46 007 907	47 163 250	52 262 120	52 262 120
Translation difference	-27 442	-20 910	-59 403	-20 140	-52 264
Share issue	5 236 646	0	9 889 278	0	25 899 999
Issue costs	-255 159	0	-582 738	0	-5 242 030
Warrant premiums	446 218	0	446 218	0	821 205
Profit or loss for the period/year	-5 070 531	-7 934 616	-10 179 219	-14 189 599	-26 525 780
Equity at end of period /year	**46 677 386**	**38 052 381**	**46 677 386**	**38 052 381**	**47 163 250**

Group cash flow statement (SEK)

	Q2 2025	Q2 2024	Q1-Q2 2025	Q1-Q2 2024	2024
Operating activities					
Operating profit or loss	-5 038 399	-7 939 019	-10 069 406	-14 228 482	-26 387 990
Adjustments for non-cash intems	540 671	2 050 280	988 366	4 487 509	5 307 962
Interest received etc.	372	9 285	64 196	10 176	105 772
Interest paid	-14 119	-18 209	-90 192	-34 662	-214 230
Income tax paid	0	0	0	0	0
Cash flow from operating activities before changes in working capital	**-4 511 475**	**-5 897 663**	**-9 107 036**	**-9 765 459**	**-21 188 486**
Cash flow from changes in working capital					
Decrease(+)/increase(-) in receivables	694 021	717 777	-327 969	-690 795	136 818
Decrease(-)/increase(+) in current liabilities	-140 113	-67 315	146 046	739 635	-990 937
Cash flow from operating activities	**-3 957 567**	**-5 247 201**	**-9 288 959**	**-9 716 619**	**-22 042 605**
Investing activities					
Investments in technology development	-2 307 904	-4 159 236	-4 380 882	-8 423 407	-12 708 120
Cash flow from investing activities	**-2 307 904**	**-4 159 236**	**-4 380 882**	**-8 423 407**	**-12 708 120**
Financing activities					
Share issue	4 981 487	0	9 306 540	0	20 657 969
Loans from shareholders	0	0	0	0	5 000 000
Repayment loans from shareholders	0	0	0	0	-5 000 000
Amortization of financial leasing agreements	-50 398	-88 815	-100 111	-145 431	-227 125
Warrant premiums paid	446 218	0	446 218	0	821 205
Cash flow from financing activities	**5 377 307**	**-88 815**	**9 652 647**	**-145 431**	**21 252 049**
Change in cash and cash equivalents	-888 164	-9 495 252	-4 017 194	-18 285 457	-13 498 676
Cash and cash equivalents at beginning of period/ year	14 081 787	21 985 320	17 276 249	30 725 483	30 725 483
Exchange rate difference in cash and cash equivalents	-18 385	13 327	-83 817	63 369	49 442
Cash and cash equivalents at end of period/year	**13 175 238**	**12 503 395**	**13 175 238**	**12 503 395**	**17 276 249**

Parent company income statment (SEK)

	Q2 2025	Q2 2024	Q1-Q2 2025	Q1-Q2 2024	2024
Operating income					
Net sales	3 739 126	4 145 957	7 125 625	8 318 831	14 667 941
Other operating income	639 452	619 036	1 225 043	1 199 796	2 361 074
Total operating income	**4 378 578**	**4 764 993**	**8 350 668**	**9 518 627**	**17 029 015**
Operating expenses					
Other external expenses	-2 194 882	-2 701 870	-3 999 082	-5 425 548	-8 936 349
Personnel expenses	-2 112 164	-2 091 342	-4 170 480	-3 887 361	-7 711 561
Depreciation of tangible and intangible fixed asset	-3 010	-3 010	-6 020	-6 020	-12 040
Other operating expenses	0	-86 386	0	-86 386	-86 386
Total operating expenses	**-4 310 056**	**-4 882 608**	**-8 175 582**	**-9 405 315**	**-16 746 336**
Operating profit	**68 522**	**-117 615**	**175 086**	**113 312**	**282 679**
Financial items					
Profit/loss from participation in group companies	-45 000	-2 740 000	-180 000	-4 740 000	-119 900 000
Other interest income and similar profit items	69 851	88 367	82 869	129 605	449 875
Interest expense and similar loss items	-23 945	-29 962	-38 775	-49 170	-205 328
Profit or loss from financial items	**906**	**-2 681 595**	**-135 906**	**-4 659 565**	**-119 655 453**
Profit or loss before tax	**69 428**	**-2 799 210**	**39 180**	**-4 546 253**	**-119 372 774**
Taxes					
Tax on income for the period	0	0	0	0	0
Profit or loss for the period/year	**69 428**	**-2 799 210**	**39 180**	**-4 546 253**	**-119 372 774**
Key figures					
EBITDA	71 532	-114 605	181 106	119 332	294 719
Earnings per share	0.00	-0.07	0.00	-0.11	-2.71
Number of shares. average	68 301 466	39 646 906	64 242 184	39 646 906	44 112 423
Number of shares at balance sheet date	73 842 891	39 646 906	73 842 891	39 646 906	57 508 974
Earnings per share after full dilution	0.00	-0.07	0.00	-0.11	-2.71
Number of shares after full dilution. average	77 433 172	41 059 706	76 888 827	41 059 706	49 923 224
Number of shares after full dilution. balance sheet date	80 822 891	41 059 706	80 822 891	41 059 706	76 628 676

Parent company balance sheet (SEK)

Assets	Jun 30, 2025	Jun 30, 2024	Dec 31, 2024
Fixed assets			
Tangible fixed assets			
Equipment	21 039	33 079	27 059
Total tangible fixed assets	**21 039**	**33 079**	**27 059**
Financial assets			
Participations in group companies	34 885 363	120 558 538	34 619 145
Receivables from group companies	13 516 188	14 301 006	0
Total financial assets	**48 401 551**	**134 859 544**	**34 619 145**
Total fixed assets	**48 422 590**	**134 892 623**	**34 646 204**
Current assets			
Current receivables			
Account receivables	25 189	37 817	282 289
Other receivables	453 878	454 110	359 727
Prepayments and accrued income	1 103 239	1 306 203	1 057 877
Total current receivables	**1 582 306**	**1 798 130**	**1 699 893**
Cash and bank balances			
Cash and bank balances	12 681 328	11 467 580	16 109 962
Total cash and bank balances	**12 681 328**	**11 467 580**	**16 109 962**
Total current assets	**14 263 634**	**13 265 710**	**17 809 855**
Total assets	**62 686 224**	**148 158 333**	**52 456 059**

Parent company balance sheet cont. (SEK)

Equity and liabilites	Jun 30, 2025	Jun 30, 2024	Dec 31, 2024
Equity			
Restricted equity			
Share capital	3 396 773	1 823 758	2 645 413
Total restricted equity	**3 396 773**	**1 823 758**	**2 645 413**
Unrestricted equity			
Profit brought forward	54 915 618	144 629 474	165 286 994
Profit or loss for the period/year	39 180	-4 546 253	-119 372 774
Total unrestriced equity	**54 954 798**	**140 083 221**	**45 914 220**
Total equity	**58 351 571**	**141 906 979**	**48 559 633**
Current liabilities			
Accounts payable	240 748	389 242	233 651
Liabilities to group companies	553 223	2 142 868	652 663
Other liabilities	655 576	737 562	328 077
Accrued expenses and accrued income	2 885 106	2 981 682	2 682 035
Total current liabilities	**4 334 653**	**6 251 354**	**3 896 426**
Total equity and liabilities	**62 686 224**	**148 158 333**	**52 456 059**
Key Figures			
Equity-assets-ratio	93.1%	95.8%	92.6%
Debt-to-equity ratio	0.0%	0.0%	0.0
Interest-bearing net debt	n/a	n/a	n/a

Changes in parent company equity (SEK)

	Q2 2025	Q2 2024	Q1-Q2 2025	Q1-Q2 2024	2024
Equity at beginning of period/year	52 854 438	144 706 189	48 559 633	146 453 232	146 453 232
Share issues	5 236 646	0	9 889 278	0	25 899 999
Issue costs	-255 159	0	-582 738	0	-5 242 030
Warrant premiums	446 218	0	446 218	0	821 206
Profit or loss for the period/year	69 428	-2 799 210	39 180	-4 546 253	-119 372 774
Equity at end of period /year	**58 351 571**	**141 906 979**	**58 351 571**	**141 906 979**	**48 559 633**

Parent company cash flow statement (SEK)

	Q2 2025	Q2 2024	Q1-Q2 2025	Q1-Q2 2024	2024
Operating activities					
Operating profit or loss	68 522	-117 615	175 086	113 312	282 679
Adjustments for non-cash intems	3 010	3 010	6 020	6 020	12 041
Interest received etc.	55 892	68 666	82 869	84 030	438 436
Interest paid	7 877	-29 962	-6 953	-49 170	-205 328
Income tax paid	0	0	0	0	0
Cash flow from operating activities before changes in working capital	**135 301**	**-75 901**	**257 022**	**154 192**	**527 828**
Cash flow from changes in working capital					
Decrease(+)/increase(-) in receivables	931 617	1 489 692	117 587	136 377	234 614
Decrease(-)/increase(+) in current liabilities	72 700	443 464	537 667	500 068	-364 655
Cash flow from operating activities	**1 139 618**	**1 857 255**	**912 276**	**790 637**	**397 787**
Investing activities					
Loans provided to group companies	-7 107 582	-10 431 066	-13 615 628	-19 158 138	-34 746 739
Cash flow from investing activities	**-7 107 582**	**-10 431 066**	**-13 615 628**	**-19 158 138**	**-34 746 739**
Financing activities					
Share issue	4 981 487	0	9 306 540	0	20 657 969
Loans from shareholders	0	0	0	0	5 000 000
Repayment loans from shareholders	0	0	0	0	-5 000 000
Warrant premiums paid	0	0	0	130 014	0
Cash flow from financing activities	**4 981 487**	**0**	**9 306 540**	**130 014**	**20 657 969**
Change in cash and cash equivalents	-986 477	-8 573 811	-3 396 812	-18 367 501	-13 690 983
Cash and cash equivalents at beginning of period/ year	13 685 668	20 021 690	16 109 962	29 789 506	29 789 506
Exchange rate difference in cash and cash equivalents	-17 863	19 701	-31 822	45 575	11 439
Cash and cash equivalents at end of period/ year	**12 681 328**	**11 467 580**	**12 681 328**	**11 467 580**	**16 109 962**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RETHINKING PAYMENTS