Building loyalty programs with StableCoin as a Service

WHITEPAPER
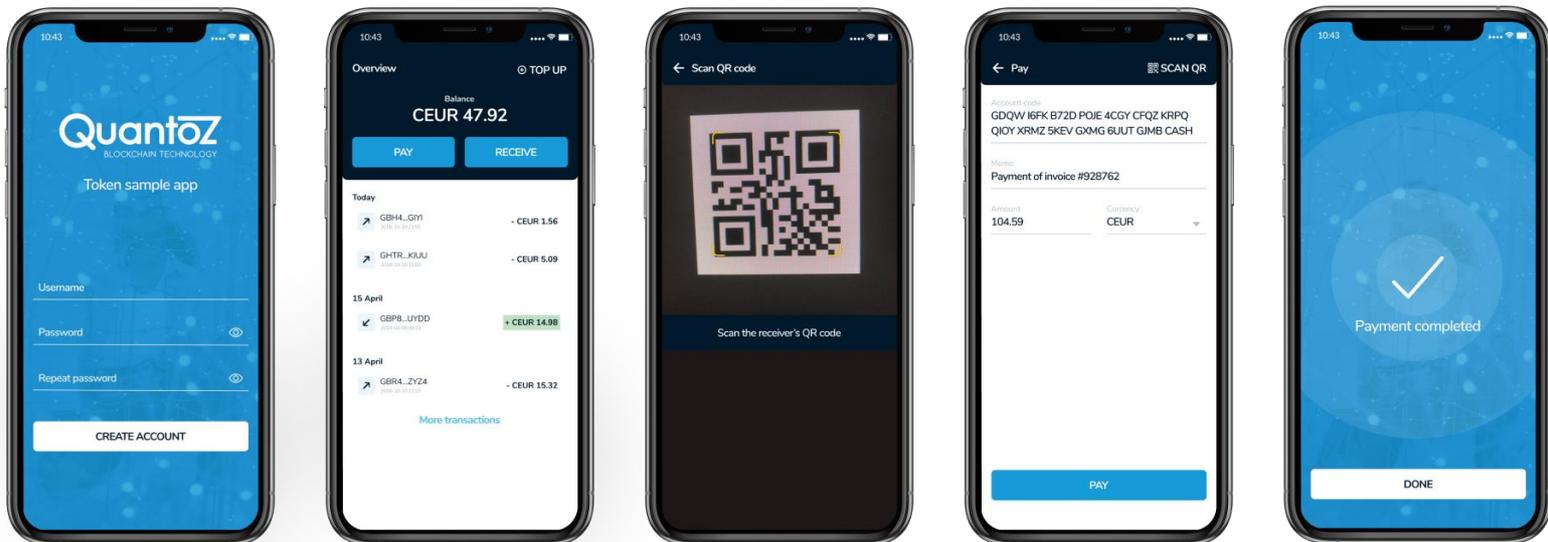
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Introduction

In this whitepaper we will consider how the StableCoin as a Service (SCaaS) solution offered jointly by Quantoz, Bank Frick and BDO can be used to build and manage a successful loyalty program ecosystem.

Loyalty programs can be a valuable asset in the marketing efforts of both small and large businesses and can significantly increase the lifetime value of customers. However, developing and managing a good loyalty program can be a challenging undertaking. From a design perspective, it is often difficult for businesses to differentiate their loyalty programs from those of similar businesses, while customers feel that loyalty programs are insufficiently personalized. Together, this often leads to limited customer engagement. From the perspective of managing a loyalty program, many businesses or networks of businesses are challenged with the difficulties of bookkeeping related to the administering of loyalty points. Moreover, research has shown that over 50% of distributed loyalty points, with an estimated worth of about $50 billion, are never redeemed. These unclaimed rewards can create large liabilities on the balance sheets of companies operating loyalty programs.

Digitizing and tokenizing loyalty programs can be a great solution for businesses looking to take advantage of the benefits that come from operating a loyalty program, while overcoming the challenges in designing and managing a loyalty program. To help businesses in building and managing a successful loyalty program, the StableCoin as a Service solution also supports a loyalty program implementation. With the SCaaS solution, all participants of a loyalty program, including issuers, merchants, customers and auditors, interact within one system without compromising privacy or competitiveness. This enables all participants to benefit from the substantial improvements that the digitization of loyalty programs offer.

These benefits include the instantaneous and secure creation, redemption and exchange of loyalty reward points across programs, merchants and industries. Through secure and transparent transactions, the SCaaS solution reduces system management costs associated with bookkeeping, errors and fraud. Moreover, customers will be able to use their points more readily and quickly among a wider range of products and services and increase their experience and engagement. Through cost savings, the collection and gathering of data and the resulting different dynamics between loyalty program participants, this creates a more valuable loyalty program ecosystem for all participants involved.

Building a closed loop ecosystem for loyalty programs

Through creating a 'virtual private payment network', StableCoin as a Service enables companies to issue their private coin in line with the PSD2 directive[1]. Here, a 'closed loop ecosystem' is created so that the issuer can use private coins within its own network or in a network with a similar product group. In the case of loyalty programs, this enables the issuer to offer a variety of private coins that can be used in a loyalty program, without the need to obtain an e-money license.

The different roles in a closed loop ecosystem for loyalty programs

A closed loop ecosystem has (at least) five roles, as described below:

1. The **issuer** (operator of the loyalty program) issues the loyalty points guaranteeing a fixed exchange rate with a currency to all participants in the system. The loyalty points are 'pegged' to the currency (for example Euro) and held on the escrow bank account of the issuer. This enables a transparent accountancy check of the loyalty points.
2. **Merchants** can create an account with the issuer and sell their services to customers. If a customer buys a service for 100 Euros, the customer receives for example 100 loyalty points (1 cent value each) in his wallet. To be able to send these loyalty points to the customers, the merchant first must buy for 1 Euro these 100 loyalty points from the issuer.
3. Also, **customers** can create an account. They can send their loyalty points back to the issuer and in return receive fiat money on their bank account. They can also use their collected loyalty points to buy services from merchants within the ecosystem.
4. A **bank** offers an escrow account for the fiat currency that backs the loyalty points that are in the ecosystem (total number of points that customers and merchants have in their respective wallets.)
5. An independent **auditor** can be appointed to audit the ecosystem.

Together, all participants in a SCaaS ecosystem operate as a fully compliant permissioned system: before participating in the ecosystem, identification and verification of merchants

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[1]

https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en

(KYB) and consumers (KYC) is mandatory. SCaaS makes it effortless for the issuer to add and drop customers and merchants to the loyalty program.

Money and loyalty point transactions within a closed loop ecosystem

An example of how fiat money and loyalty points flow in one ecosystem is displayed in the diagram below:
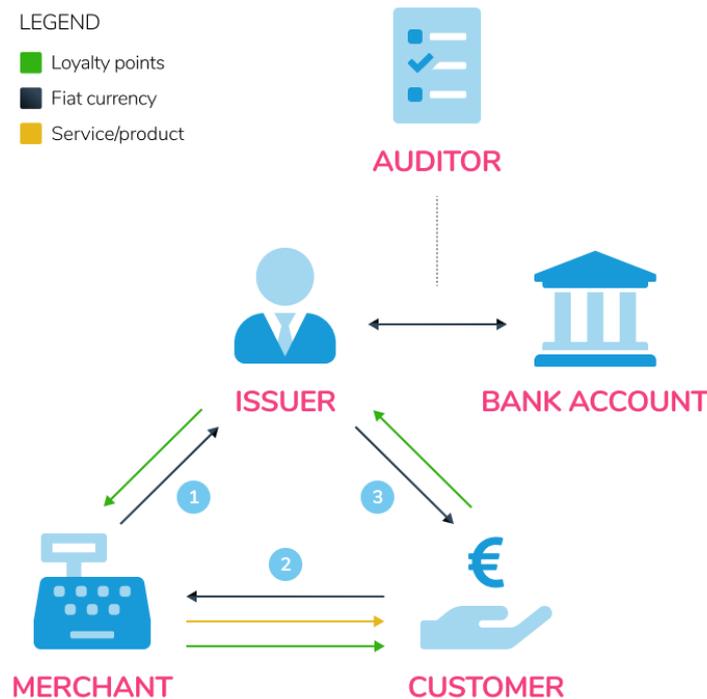

Figure 1: A flow of fiat money and loyalty points in a loyalty program ecosystem.

1. The merchant sends money to the issuer's escrow bank account. Upon receipt of the money, NEXUS (the technical infrastructure[2]) will automatically create ('mint') the related number of tokens (=loyalty points) and send these tokens from the issuer's wallet to the merchant's wallet.
2. The customer buys for example a service from a merchant and pays with Euros. The merchant sends the product or provides the service upon receipt of the money and instantly sends the earned loyalty points from the merchant's wallet to the customer's

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[2] For more information about the NEXUS technical infrastructure, please see appendix A.

digital wallet. The issuer does not need to do anything. The book-keeping is automatically taken care of in the blockchain.

3. The customer sends the tokens back to the issuer's wallet. NEXUS will then burn the tokens and the issuer will send the fiat money from the escrow bank account to the customer's bank account. Burning tokens guarantees that the loyalty points are always backed by the money on the escrow account.

An independent auditor checks if the number of tokens in the customers' and merchants' wallets is secured by the fiat money on the issuer's escrow bank account. The exchange between fiat money and loyalty points – in both directions - can only be carried out by the issuer's escrow bank account and digital wallet. The issuer's digital wallet and escrow bank account are the only places where fiat money can enter or leave the ecosystem and where loyalty points can be minted (created) or burned (deleted).

Paying with loyalty points

Customers can also pay merchants with earned loyalty points. This means a blockchain transaction of these points from the customer's wallet to the merchant's wallet. No action from the issuer is required.
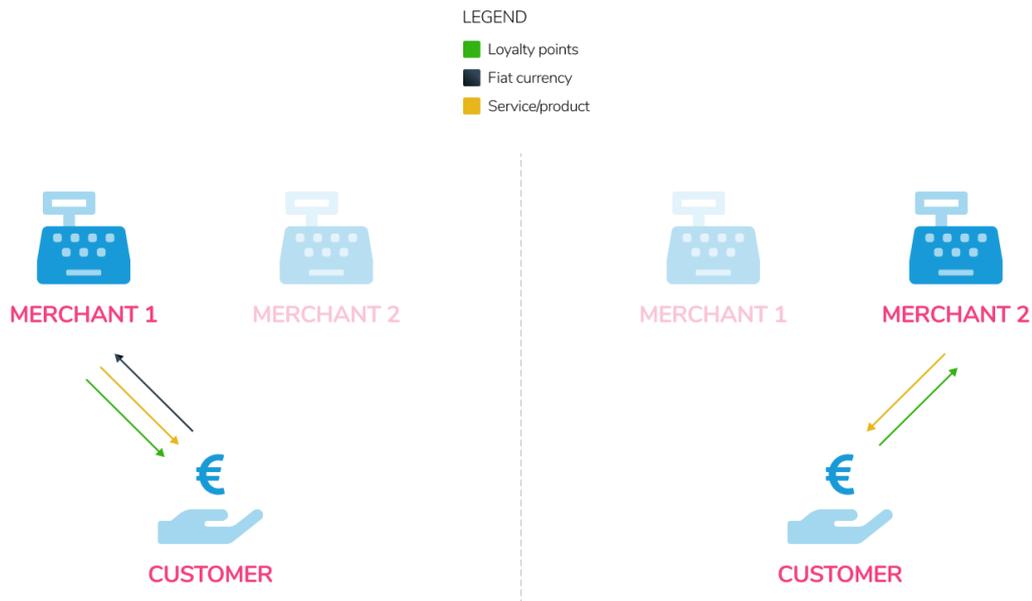
Figure 2: An example of a customer that pays with loyalty points.

Swapping loyalty points

The NEXUS platform can accommodate different and multiple loyalty programs, facilitating their interaction, especially in terms of the convertibility and exchange of these points, without the need for interaction by the issuer.

The so-called 'swap transaction' contains two payments which are automatically processed by NEXUS: one payment sending tokens from the customer or merchant to the issuer and one payment sending tokens from the issuer back to the customer or merchant.

Figure 3: An example of the NEXUS portal and various tokens.

Operating a loyalty program in credit mode

The above described loyalty program operates in 'debit mode': all issued loyalty points are backed by fiat currency in an escrow account. SCaaS offers the possibility to execute the loyalty program in 'credit mode'; the issuer can set an individual credit limit for each merchant. At the end of a period (week, month) the issuer aggregates all minting transactions and sends an invoice about the actual number of loyalty points the merchant has sent to its customers.

Transaction costs

The blockchain transactions in the ecosystem are instant and have a very low transaction fee. Each transaction made on the Stellar network has a comparatively low fee of 0.00001 lumens (native Stellar token). With one Lumen valued at approximately $0.40, this makes the cost of a transaction $0.000004. The customers and merchants don't have to pay this fee and don't have to be aware of this happening at all. The transaction fees are paid by the issuer.

Use cases

An opportunity for small businesses and financial institutions

SCaaS enables smaller companies and networks to start offering their own loyalty programs or connect to existing loyalty programs. For example, a business for which a bank provides merchant banking and treasury management services will gain access to the bank's flexible (smart) loyalty rewards network.

In addition, the bank can also offer the merchant the opportunity to join a loyalty network as a provider on the merchant's own terms through its own tailored rewards app. Now the merchant, which previously did not have a loyalty program with scale, would have the option to offer its clients loyalty points that could be redeemed ('swapped') within a wider network. The bank is adding a value-added service to its small business client while the loyalty network gains another vendor that can interact with other loyalty rewards programs to which they previously did not have access.

For example, a local coffee shop that is afforded entry into the network by its merchant banking provider will have the flexibility to offer its customers opportunities to use their 'bean points' towards accommodations at a business or a hotel in another state in which it previously had little to no brand recognition.

This model has been implemented by Quantoz with a bank in the CEE region. In this case, when a customer visits a garage 3 or more times in a week, the garage owner will automatically send loyalty points that can be redeemed for a free coffee in the shopping mall nearby.

Figure 4: An example of a loyalty program initiated by a bank in the CEE region.

A loyalty program for the automotive industry

Quantoz has implemented a (micro-)payment platform for the automotive industry that included a loyalty program through vouchers. In this setup, the loyalty program is managed by the car manufacturer that acts as the issuer. The vouchers support service providers in the automotive industry in customer retention programs, without the need to know the customer. Here, a network is created where different service providers that are partners of the car manufacturer distribute and accept loyalty points for their products or service.
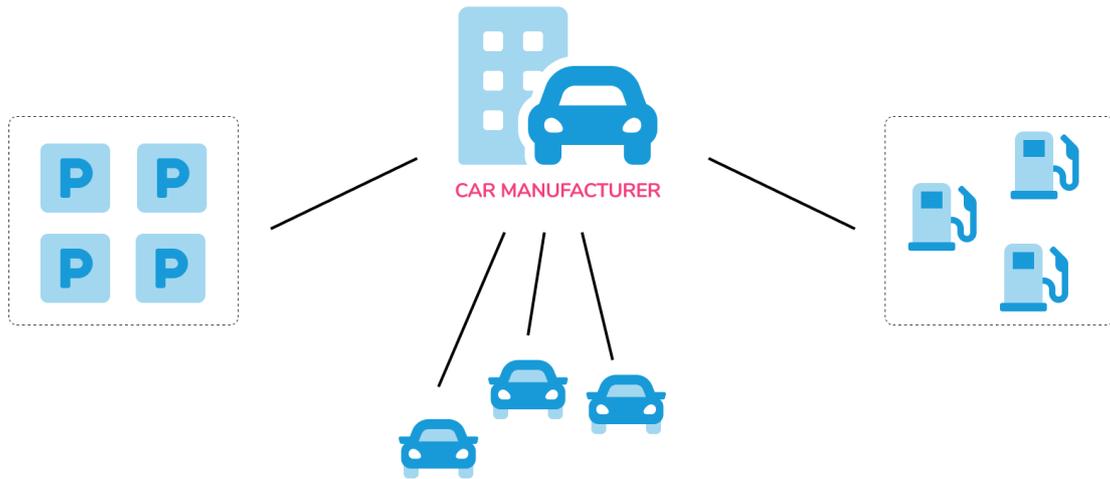
Figure 5: An example of a loyalty program for the automotive industry initiated by a car manufacturer.

Advantages of a SCaaS loyalty program

The SCaaS loyalty program solution lowers the cost of operating a loyalty program, increases the ability to collect, gather and analyse data, allows more parties to join the program and overall increases the value of a loyalty program ecosystem. More specifically, using SCaaS for running a loyalty program can bring the following advantages:

For issuers

The tokenization of loyalty points makes these points unique, traceable and fraud-proof. Through the SCaaS system, issuers have a clear overview of the amount of loyalty tokens within their ecosystem and where the tokens reside. Moreover, the issuer can offer more transparent reporting and tracking of transactions to merchants, leading to better insight into the behaviour of customers.

Additionally, thanks to the low transaction costs, both issuers and merchants can offer micro services, with the possibility for the issuer to offer a service in case the customer or merchant loses access to his digital wallet.

For merchants

SCaaS makes it easy for merchants to integrate loyalty programs into their marketing efforts, while maintaining their focus on their core business. Additionally, through big data analysis on the blockchain transaction data, merchants can specifically target those customers that are most profitable and allocate loyalty reinvestment to the most profitable customers. Moreover, offerings - including micro services - can be customized to the individual to improve customer engagement.

For customers

Customers can easily manage multiple loyalty programs within one wallet and swap between tokens. Thanks to near real-time transactions at ultra low fees, redeeming loyalty points has become easier and more attractive than ever, even allowing for the payment of micro services. Combined with the ability to recover lost or stolen loyalty points, this creates a superior loyalty program experience for the customer.

For auditors

Unclaimed loyalty points (the amount of loyalty points on the blockchain) are accounted for as liabilities on the issuer's balance sheet and must be backed by the money that is on the issuer's bank account. Through for example one API call of the Stellar blockchain by an external auditor, the total amount of loyalty points in a SCaaS system can easily be checked. This makes auditing loyalty points and managing liabilities a lot easier for auditors.

An opportunity for your business

Running a successful loyalty program can enhance brand recognition, increase customer lifetime value and offers beneficial network effects. However, over the years, many businesses have found running a successful loyalty program to be a challenging endeavour. In many cases, distributed loyalty points have to be administered across multiple vendors and systems, unclaimed rewards create large financial liabilities, brands are not differentiated, and customers are only engaged to a limited degree.

With the StableCoin as a Service loyalty program implementation, your business will be able to benefit from the numerous advantages that digitizing loyalty programs offers. You can design your loyalty program to integrate among different channels, providing your customer a personalized experience from one channel to the next. It is even possible to come together with other businesses within one larger ecosystem, all creating the best loyalty program experience for your customer while adding value to your network. Additionally, every participant in the ecosystem benefits from the real-time transparency of the SCaaS system, from individual customers that can redeem or swap their loyalty points at will, to merchants or the issuer that can track the outstanding loyalty points. This makes it easy for you to gain insight into your customer's behaviour, while keeping your books in order and simple to audit!

If you want to start investigating what the StableCoin as a Service loyalty program implementation can do for your business, please contact Quantoz, Bank Frick or BDO for a demo or more information or check out www.quantoz.com/stablecoin.

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Appendix A: The NEXUS technical infrastructure

The SCaaS solution runs on the NEXUS technical infrastructure provided by Quantoz. NEXUS is an end-to-end SaaS solution that enables businesses to easily integrate public blockchain infrastructure in their existing financial applications and manage tokens like digital currencies, without the need to deal with the technical aspects involved[3].
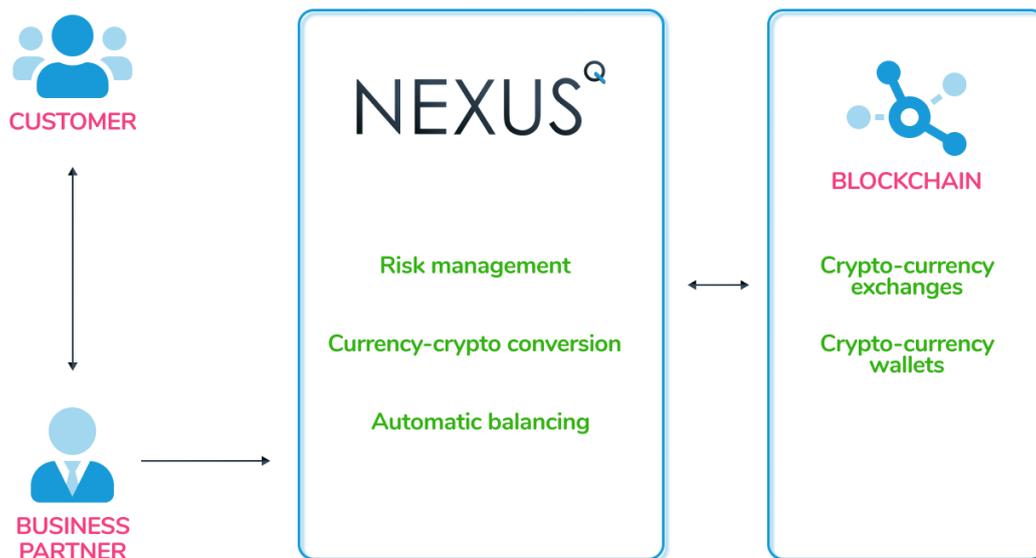

Figure 6: A high-level overview of the NEXUS technical infrastructure.

Quantoz has a lot of experience in connecting its blockchain solutions with legacy systems. These legacy systems for example keep private / personal data of the customers and merchants. In Quantoz' preferred implementation, NEXUS only holds a reference key and all private customer data is stored in the issuer's legacy system, where NEXUS manages the loyalty points bookkeeping and the loyalty point transactions.

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[3] For more information about the NEXUS system, visit https://quantoz.com/products/nexus/