

StableCoin as a Service (SCaaS)

WHITEPAPER



Table of contents

Introduction	3
The NEXUS technical infrastructure	4
A StableCoin as a Service closed loop ecosystem.....	5
The different roles in the SCaaS closed loop ecosystem.....	5
The flow of fiat money and stablecoins in an ecosystem	5
Transaction costs.....	7
StableCoin as a Service core features.....	8
Customer and account management.....	8
Gateway to payment processors.....	8
Hot-wallet service for instant blockchain transaction processing	8
Stablecoin reserve	9
Support and implementation	9
An opportunity for your business	10
Appendix A: Stabilization mechanisms.....	11

Introduction

Many in the Fintech world believe that the widespread use of cryptocurrencies and blockchain technologies may bring fundamental changes to the financial services industry and the payments industry in particular. However, the volatility of existing popular cryptocurrencies such as bitcoin (BTC) or ether (ETH) significantly reduces their usefulness for making (everyday) payments and can make token ecosystems unstable. Therefore, there is an increasing demand for digital tokens that represent stable values, so called 'stablecoins'. Often, these tokens are designed to trade at parity with fiat currencies, such as the dollar or the euro. However, many of these stablecoins miss the trust that comes with transparency and compliance.

In response to the demand for transparent and compliant stablecoins, the StableCoin as a Service (SCaaS) solution was created. StableCoin as a Service is a joint offering by Bank Frick, a family-run enterprise bank in Lichtenstein with a focus on blockchain banking, Quantoz, a Dutch innovative FinTech startup founded in 2015 and located in the Netherlands, and BDO, one of the five largest accounting organizations worldwide. SCaaS is a PSD2 compliant solution that enables companies to become the issuer of their own stablecoin and to create an ecosystem in which merchants and customers can exchange tokens pegged to a fiat currency with a guaranteed exchange rate in a trusted and compliant manner.

The cooperation between Quantoz, Bank Frick and BDO allows StableCoin as a Service to be a unique solution for companies wanting to issue their own stablecoin:

- By using the SCaaS solution, businesses will be able to directly start integrating tokens while maintaining their focus on their core competence and doing what they do best.
- SCaaS enables issuers and merchants to sell their products or services with lower transaction fees and offers the possibility to create entirely new business models.
- Participants in SCaaS do not need to have knowledge about digital wallets, crypto trading or crypto handling and can rely on Quantoz' proven technology. No technical skills are needed to operate the system and the user interface is completely intuitive.
- SCaaS is cheaper, faster and safer than developing a stablecoin in-house. The fully automated process will reduce errors that might come from development risk, operational risk or other risks, while enabling businesses to offer their new disruptive service rapidly.
- The cooperation between Quantoz, Bank Frick and BDO enables SCaaS to be fully PSD2 compliant.
- SCaaS offers fully auditable bookkeeping between fiat and token transactions, with all transactions and operations being fully traceable, all while safeguarding the privacy of the end-user.
- The ecosystem is a closed loop and wallets can be frozen in case they are stolen or lost, protecting the funds of all stakeholders.

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 involved¹.

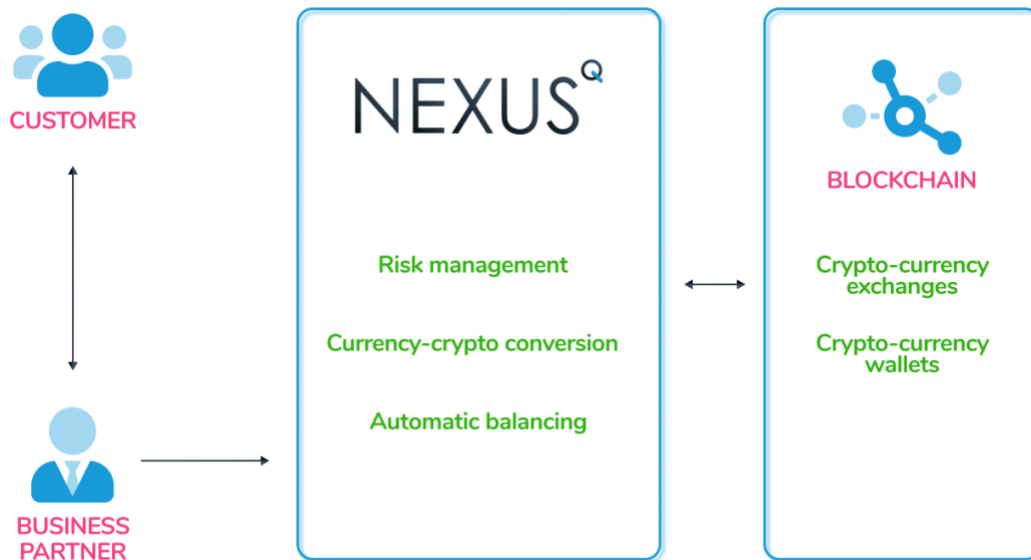


Figure 1: A high-level overview of the NEXUS technical infrastructure.

¹ For more information about the NEXUS technical infrastructure, visit <https://quantoz.com/products/nexus/>

A StableCoin as a Service closed loop ecosystem

Through creating a 'virtual private payment network' (currently on the Stellar blockchain), SCaaS enables companies to issue their stablecoin in line with the PSD2 directive². Here, a 'closed loop ecosystem' is created so that the issuer can use stablecoins within its own network or in a network with a similar product group, without the need to obtain an e-money license.

The different roles in the SCaaS closed loop ecosystem

The SCaaS closed loop ecosystem has (at least) the following five roles:

1. **The issuer** issues the token guaranteeing a fixed exchange rate with a so called 'pegged token' to all participants in the system. When issuing the token, the corresponding value in pegged token is reserved by the issuer in a specific custodian account on the blockchain. The pegged token is connected to the currency (for example Euro) held on the fiat backing account of the token issuer and is also called 'Cash on Ledger'. This enables a transparent accountancy check on the full reserve status of the pegged token.
2. **Merchants** can create an account and sell their services in exchange for tokens. They can sell the earned tokens back to the issuer.
3. **Customers** (consumers) can create an account, buy tokens from the issuer and spend their tokens with merchants.
4. A **financial institution** to offer fiat backing accounts for the fiat currencies it supports.
5. An independent **auditor** should 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 (KYB) and consumers (KYC) is mandatory. Additionally, the NEXUS software provides all the tools and reports to manage Anti Money Laundering (AML) processes.

The flow of fiat money and stablecoins in an ecosystem

The example below displays a flow of fiat money and stablecoins in an ecosystem, managed by NEXUS:

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

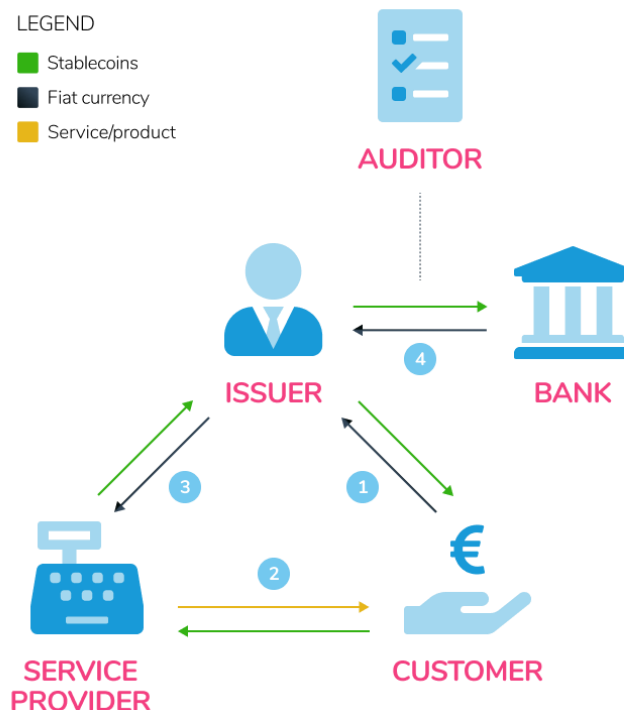


Figure 2: A flow of fiat money and stablecoins in a closed loop SCaaS ecosystem.

1. The customer sends fiat currency to the issuer's fiat backing account. Upon receipt of the money, NEXUS will automatically mint (create) the related number of tokens (stablecoins) and send these tokens to the customer's wallet.
2. The customer can pay with the tokens for example at a web shop. The merchant sends the goods or provides the service upon receipt of the tokens in the merchant's wallet.
3. If the merchant decides to cash out his tokens, he sends them to the issuer's wallet and initiates a request to the issuer.
4. On behalf of the issuer, NEXUS will burn (delete) the tokens from the system. Subsequently, NEXUS will send the corresponding fiat money from the fiat backing account to the merchant's bank account.

In NEXUS, stablecoin prices are always pegged at a one-to-one ratio to the fiat currency³. The amount of stablecoins issued in the SCaaS ecosystem is directly connected to the amount of fiat currency held in a fiat backing account as a reserve. This is checked by an independent auditor, who checks if the number of tokens in the consumers' and merchants' wallets is covered by the fiat money on the fiat backing account. The exchange between fiat money and tokens can only be carried out by the issuer

³ For more information on (alternative) stabilization mechanisms, please see Appendix A.

via the issuer's fiat backing account and the issuer's digital wallet. This is also the only place where fiat money can enter or leave the ecosystem.

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.

StableCoin as a Service core features

Customer and account management

- Onboarding, compliance functionality: Compliant customer management (AML, KYC) tools. NEXUS generates compliance reports accepted by AA- (Fitch rating) banks.
- Trust levels to limit customer transactions according to compliance requirements.
- Transaction history and balance reporting.

Jorge Steward
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Customer

- Addresses **2**
- Transactions 20**
- Token Payments **41**
- Token Allowances **0**
- Token Subscriptions **0**
- Limits
- Volume history
- Status history
- Completed orders

Q Created	Q TransactionCode	Q PaymentMethod	Q Type	Q Status	Q Account	Q Value	Q Amount
3/17/2020 11:00 AM	EL20200317110051PYF	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCANCELLED	K27AGSQM	10 EUR	3.95000000 TPT1
3/16/2020 2:05 PM	EL20200316140535P93	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCANCELLED	K27AGSQM	10 EUR	3.95000000 TPT1
3/16/2020 2:05 PM	EL20200316140509PS1	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCANCELLED	K27AGSQM	10 EUR	3.95000000 TPT1
3/16/2020 12:55 PM	EL20200316125539P11	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCANCELLED	K27AGSQM	10 EUR	3.95000000 TPT1
3/16/2020 12:16 PM	EL20200316121652PRL	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCANCELLED	K27AGSQM	10 EUR	3.95000000 TPT1
3/16/2020 12:10 PM	EL20200316121025P2W	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCANCELLED	K27AGSQM	10 EUR	3.95000000 TPT1
3/16/2020 12:09 PM	EL20200316120945PL9	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCOMPLETED	K27AGSQM	5 EUR	3.45000000 CPT1
3/13/2020 4:13 PM	EL20200313161315PK8	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCOMPLETED	K27AGSQM	1 EUR	0.50000000 CPT1
3/13/2020 4:12 PM	EL20200313161226P83	EL_BUY_GENERIC_XLM_USD_SUBTRACT	BUY	BUYCOMPLETED	K27AGSQM	0.1 USD	0.50000000 TUSD2
3/13/2020 4:11 PM	EL20200313161139P9K	EL_BUY_GENERIC_XLM_EUR	BUY	BUYCOMPLETED	K27AGSQM	1 EUR	0.50000000 TEUR

Showing 1 to 10 of 20 entries

Previous 2 Next

Figure 3: An example of various transactions in the NEXUS portal.

Gateway to payment processors

- Supporting instant payment methods (standard and custom): Interfaces with multiple payment methods, including credit card, to enable integration with existing financial (fiat) banking systems.
- Robust technology to support instant multi-crypto, multi-currency transactions.
- Call-back functionality of transactions to notify merchants and/or other parties of any changes.

Hot-wallet service for instant blockchain transaction processing

- Token issuing, blockchain account/address management: An infrastructure for wallet and blockchain databases management.
- Signing of token transactions, hiding the transaction fees for the consumers and merchants

Stablecoin reserve

- Value of circulating tokens to be validated against collateral on fiat backing account: the ecosystem is audited by an independent third party. The auditor checks if the amount of issued stablecoins reserves together with the coins that are in circulation on merchant and consumer wallets is equal to the fiat reserve in the fiat backing account ('full reserve').
- Trading and transfer service to provide native crypto liquidity, necessary for transaction-fee payment.
- Automate reserve position with minimal price and counter-party risk: Trading algorithms that minimize price and counter-party risks through automated crypto position balancing.
- Custody service: (un)freeze accounts in case a digital wallet is stolen or lost.

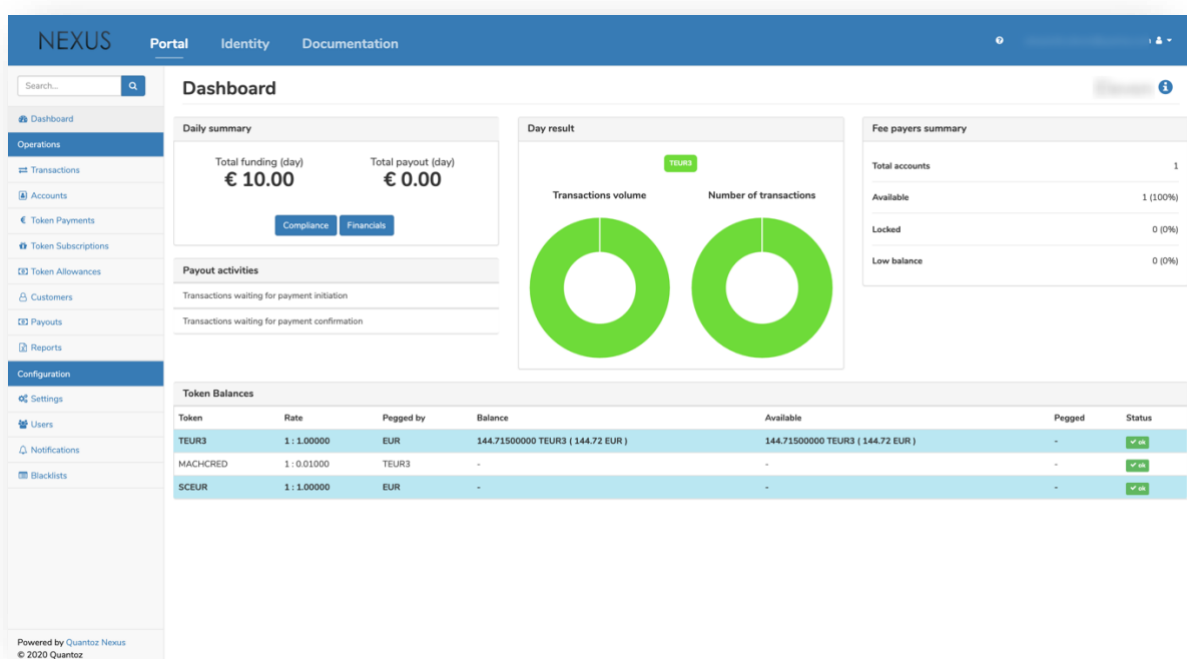


Figure 4: An example of various tokens in the NEXUS portal.

Support and implementation

- 24/7 available Health Status Dashboard with a comprehensive overview of the NEXUS system status, including servers, API calls, transactions, wallets and connection to exchanges.
- A comprehensive set of APIs for integration with backend systems, web-pages and apps.

An opportunity for your business

Digital money in the form of stablecoins can be used everywhere the internet can reach and are likely to have a profound impact on the way our society exchanges value across the world. We are rapidly moving towards a world where anyone (or even anything) with an internet connection will be able to exchange value with anyone or anything else, instantly, securely and at almost negligible costs. This creates numerous opportunities and challenges alike for business in a large variety of industries.

Without the need for in-house development or in-depth technical knowledge, StableCoin as a Service offers a fully compliant, turnkey solution that allows you to take advantage of the benefits that tokenization offers. With SCaaS, you can offer cheaper and faster payments to your customers, eliminate foreign exchange risk for internal business payments or start offering micro services. The opportunities are endless, and the solution is there!

If you are ready to start investigating what StableCoin as a Service can do for your business, feel free to contact Quantoz, Bank Frick or BDO for a demo or more information or check out www.quantoz.com/stablecoin.



Quantoz

Henri de Jong

CBDO

scaas@quantoz.com



Bank Frick

Julien Hawle

Head of Blockchain Lab

scaas@bankfrick.li



BDO

www.bdo.ch

scaas@bdo.ch

Appendix A: Stabilization mechanisms

The stabilization mechanism at the core of a stablecoin solution is crucial to determine if it can maintain a stable value or not. There are different types of solutions and their stability differs. The SCaaS mechanism described above is backed by funds and is a form of **'off-chain collateralized stablecoins'**⁴. This means that the issuer or custodian holds funds for safekeeping, implying a commitment to their full redeemability. Off-chain collateralized stablecoins do not involve a new type of asset but represent an existing fiat currency on a distributed ledger. The value of the stablecoins is therefore truly stable in terms of the currency in which the funds are denominated. In the future, NEXUS is planning to support other types of off-chain collateralized assets as well. The coins backed by traditional assets require a custodian for their safekeeping and are in the possession of the issuer only as long as the user does not redeem the coins.

Other types of solutions, which are not on the NEXUS roadmap as they are perceived to be less stable, are **'on-chain collateralized stablecoins'** and **'algorithmic stablecoins'**. On-chain collateralized stablecoins are typically backed by crypto-assets, which can be recorded in a decentralized manner and do not need either an issuer or a custodian to satisfy the claim. Algorithmic stablecoins are backed by users' expectations about the future purchasing power of their holdings, which does not need the custody of any underlying asset, and whose operation is totally decentralized⁵.

⁴ Hileman, G. (2018). State of Stablecoins. Blockchain.

⁵ Bullmann, D., Klemm, J., & Pinna, A. (2019). In search for stability in crypto-assets: are stablecoins the solution? Frankfurt am Main: European Central Bank.