

Roesticoïn Infrastructure Presentation

Project Overview

Project Purpose

- Stablecoin
- Pegged to potato price in CHF
- Combines traditional agricultural economics and decentralised finance principles

Architecture Overview

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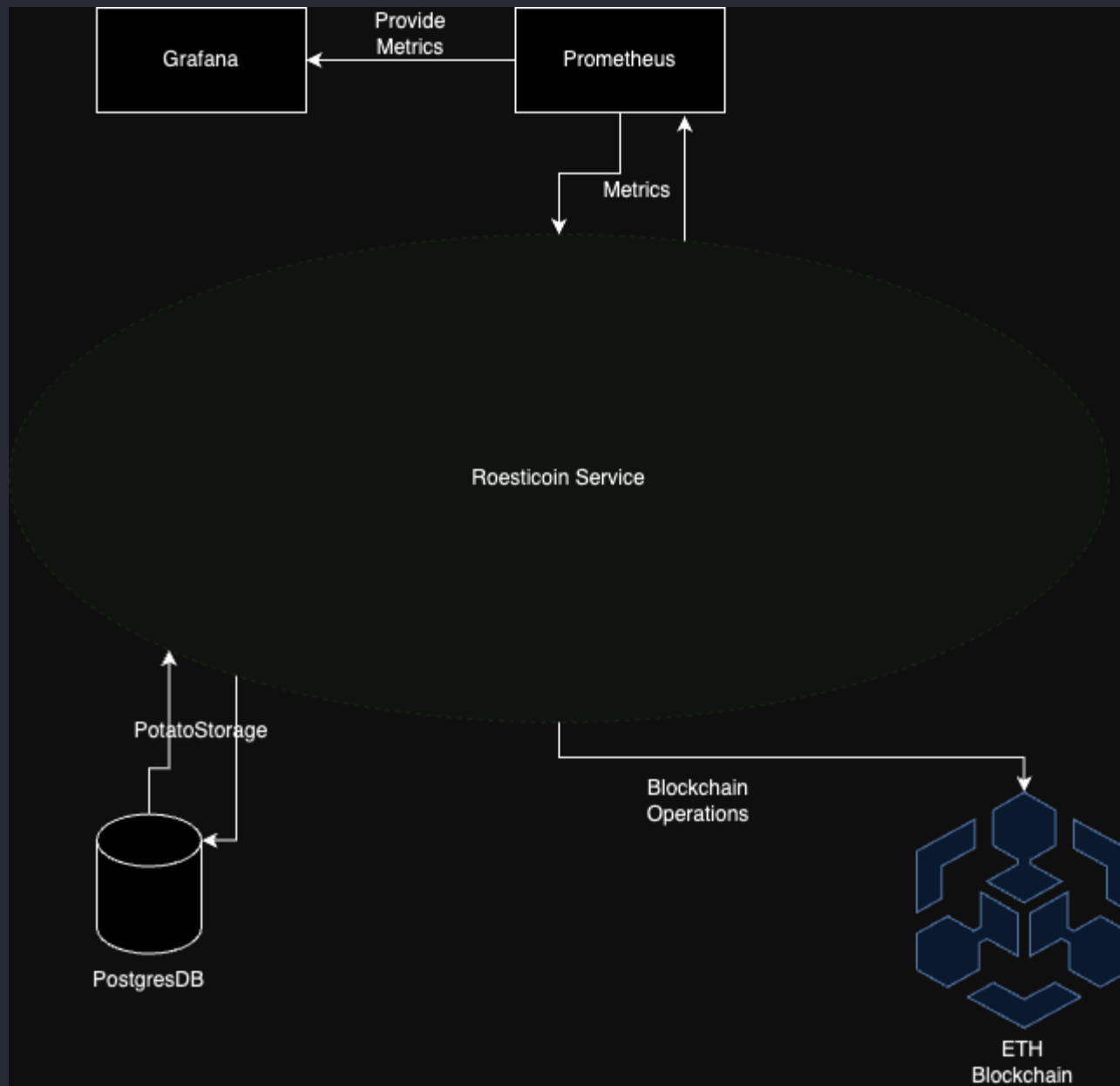
Architecture Overview

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Roesticoin Service

- Handles rebalancing
- Interacts with marketplace (mock)
- Interacts with potato storage (mock)
- Provides metrics

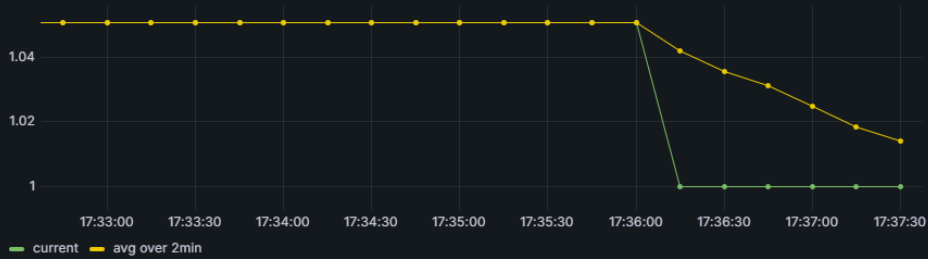
Prometheus

- Collects metrics periodically
- Provides metrics for Grafana

Grafana

- Frontend
- Presents metrics

ROC Price [kg Potato]



WETH per ROC in Pool



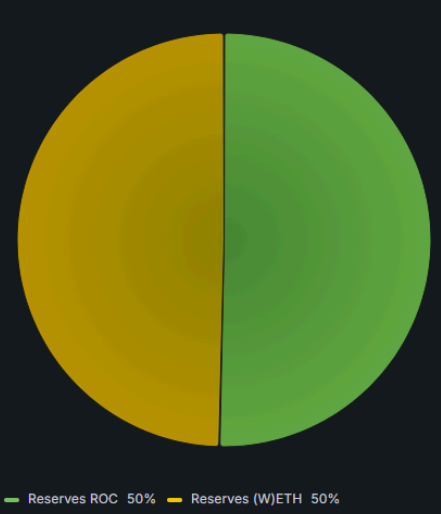
Price Error



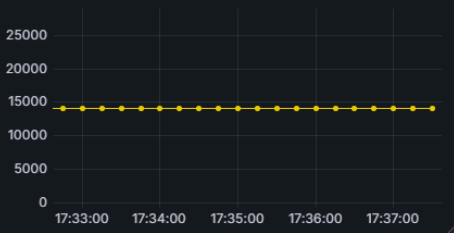
Price of 1kg Potato [ETH] ⓘ



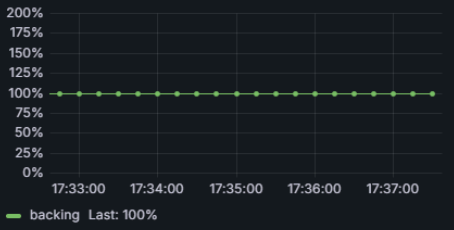
Rebalancer Reserves ⓘ



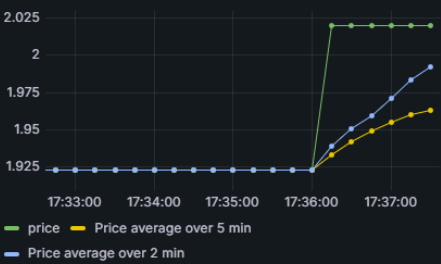
Total Supply



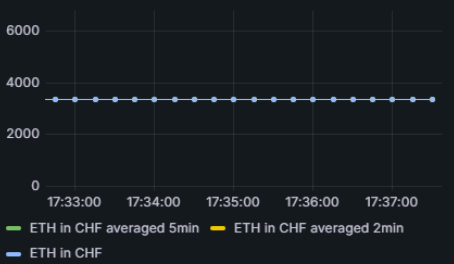
Potato [kg]/ROC



ROC Price in CHF



ETH price in CHF



Service Interaction

Service interaction is the process of communication and exchange between a service provider and a customer.

It involves the exchange of information, resources, and services between the two parties.

Service interaction can be direct or indirect, depending on the nature of the service and the customer.

Direct service interaction involves face-to-face communication, while indirect service interaction involves communication through a third party.

Service interaction is a key component of service quality and customer satisfaction.

Effective service interaction requires a deep understanding of the customer's needs and expectations.

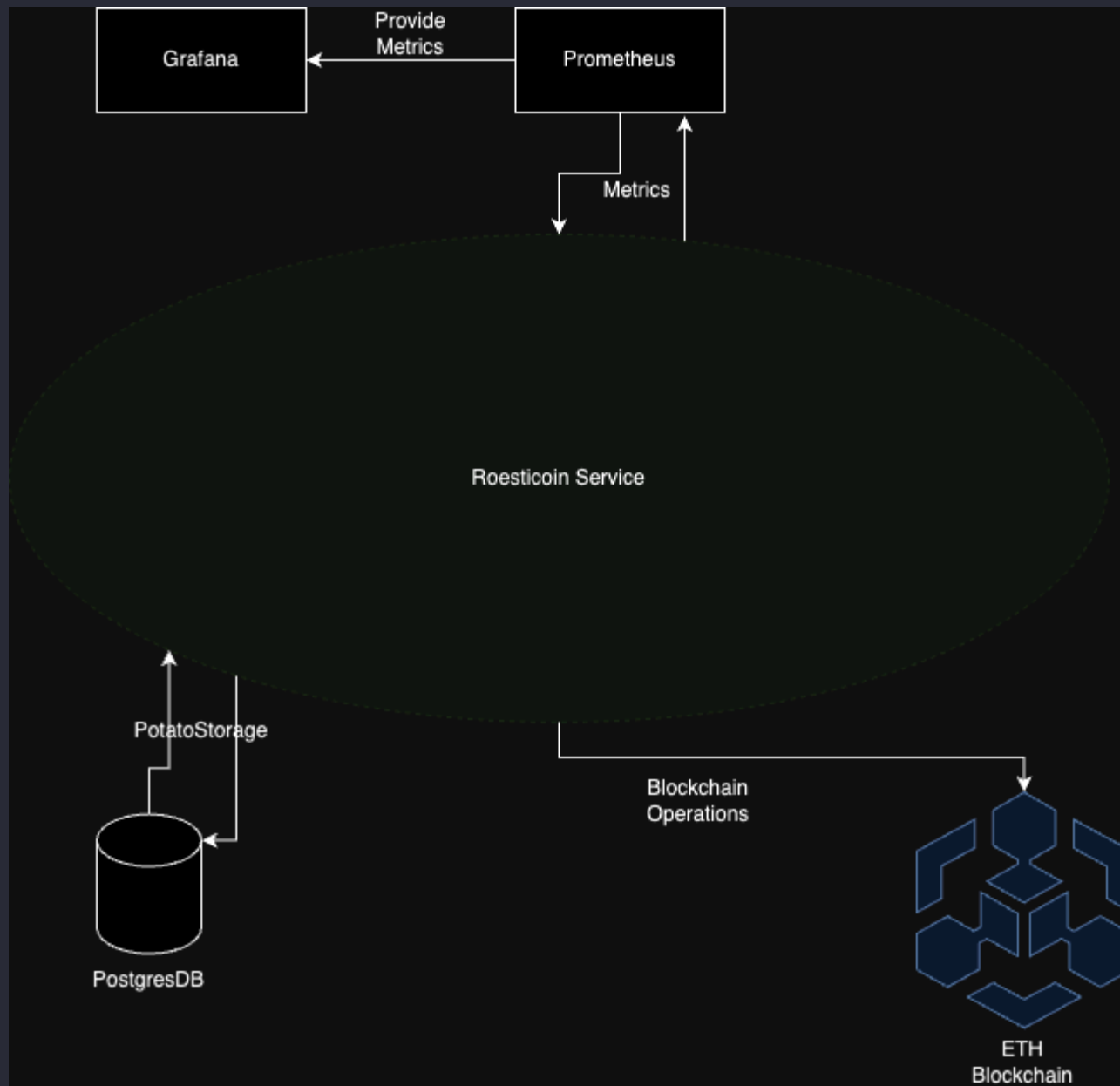
Service providers should strive to create a positive and memorable service experience for their customers.

Service interaction is a dynamic process that evolves over time and across different contexts.

Service providers should continuously monitor and improve their service interaction processes.

Service interaction is a critical factor in the success of any service-oriented organization.

Service providers should focus on creating a culture of service excellence to ensure high-quality service interaction.



Key Technologies

- **Programming Languages:**
 - Roesticoins service: C# with Netherium
 - Token: Solidity
- **Monitoring Tools:**
 - Grafana
 - Prometheus
- **Database:**
 - Postgres
- **Containerization:**
 - Docker
 - Devcontainer

Infrastructure Details

Environment Setup

- Docker compose
- Devcontainer

Monitoring Metrics

- Total Supply of Roesticoine
- WETH/Roesticoine Price
- Marketplace Potato Price (CHF and ETH)
- ETH Price in CHF
- Total Weight of Potatoes in Storage

Token

- On Ethereum Sepolia chain
- ROC is backed by potatoes: 1 ROC = 1kg potatoes
- ERC20 Token
- Role-based access
 - Smart contract for easy setup
- Uniswap pool (ROC/ETH)

Rebalance in 3 steps

- Sell one ROC to ETH, sell ETH to CHF should get you CHF 2.02
- Ensure that for every existing ROC, 1 kg potatoes is held
 - Current supply of potatoes is higher than existing ROC: Mint new ROC, hold them in the rebalancers wallet
 - Current supply of potatoes is lower than existing ROC: Burn ROC held in rebalancer wallet

- Maintain the rebalancers reserves
 - Rebalancer holds ROC, WETH
 - Value of the reserves should stay between 1:2 and 2:1
 - Balance back to 1:1 when leaving the range:
 - On too many WETH: Buy potatoes with WETH, mint new ROC
 - On too many ROC: Sell potatoes for WETH, burn ROC

- Maintain pool price
 - current pool price `sqrtPriceX96` is published on the uniswap V3 pool's `slot0` function
 - WETH is not stable: Exchange rate against CHF varies
 - When price diverges more than $\pm 0.5\%$ swap is executed to restore the desired price
 - based on the desired price and the current `sqrtPriceX96`, the amount of the token to be sold is calculated
 - Functions ported from solidity are used for this
(`getNextSqrtPriceFromAmount1RoundingDown`,
`getNextSqrtPriceFromAmount0RoundingUp`)

Monitoring and External Dependencies

Data Sources

- Official potato price by Swiss government
- Data lookup manual
- No API
- ETH / CHF price

Security

Secure Processes

- Adheres to standard blockchain security practices
- Minting is role based
- Smart contracts reviewed to the best of our abilities
- Access to codebase restricted

