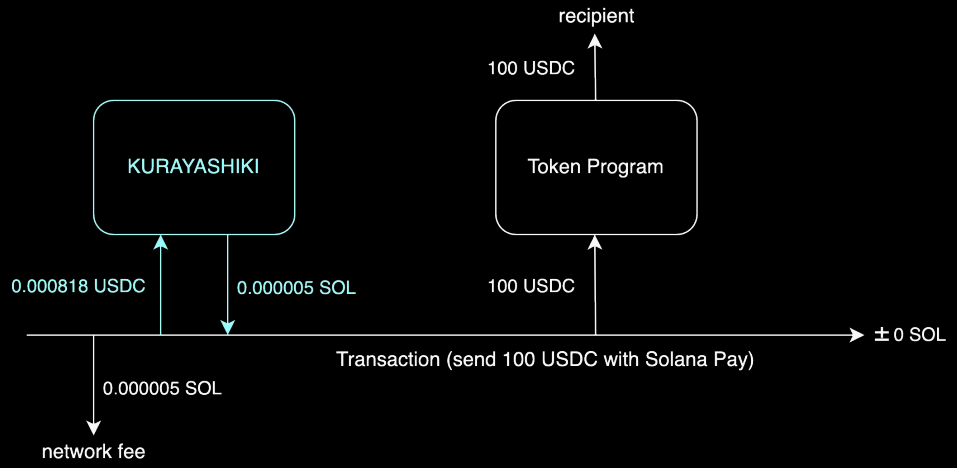

蔵 KURAYASHIKI
Pay Network fee with Stablecoin
make Solana Pay easier
for users living in countries with complex capital gains taxation.

Basic Idea & Pain point to solve

- Network fees must be paid with chain's native token.
  SOL is used in Solana.
- Users living in countries where capital gains taxation
  is confusing face major tax filing problems when using
  Crypto for payments.
- Using stablecoins such as USDC in Solana pay alleviates
  the problem, but user still pay network fee in SOL.
- Our product, KURAYASHIKI, exchanges very small
  amounts of stablecoins such as USDC for SOL,
  which is used as a network fee. Therefore, SOL balance
  will not change before and after transaction.
- KURAYASHIKI can be used by inserting one instruction into a
  transaction, so it can be embedded into various products.

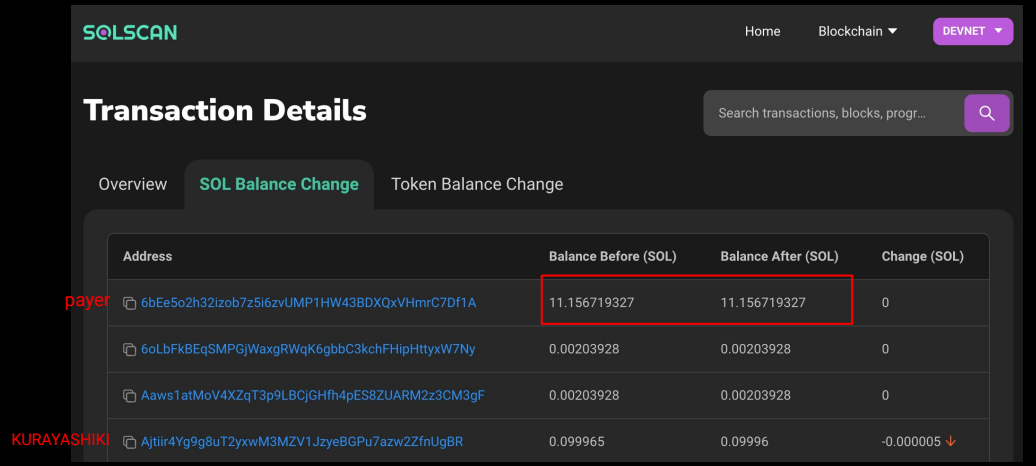


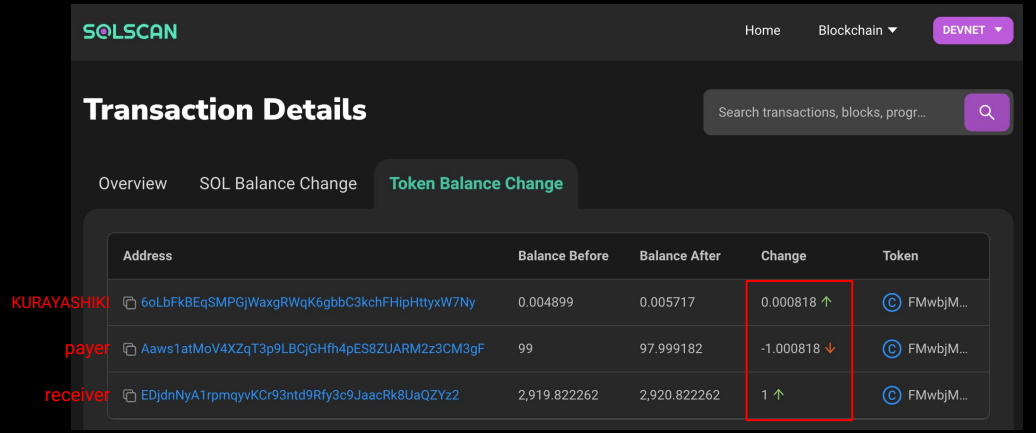
Transaction sample

- This transaction is a transfer of 1 USDC on Devnet.
- Additional 0.000818 USDC was paid as a network fee.
- SOL balance in the payer wallet (6bEe …. Df1A) has not changed before and after the transaction.

View on Solscan

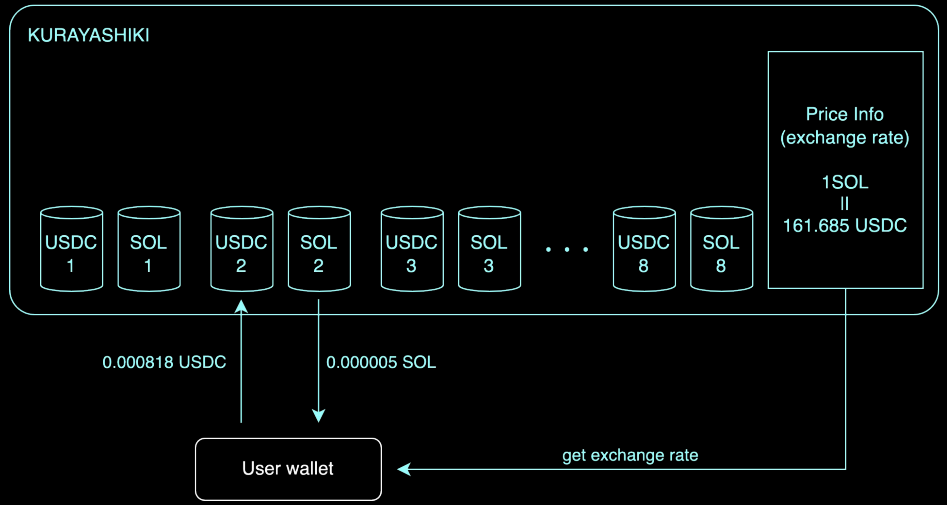
(https://solscan.io/tx/5UHiGddXRG …. BbBLsN2S5W?cluster=devnet)





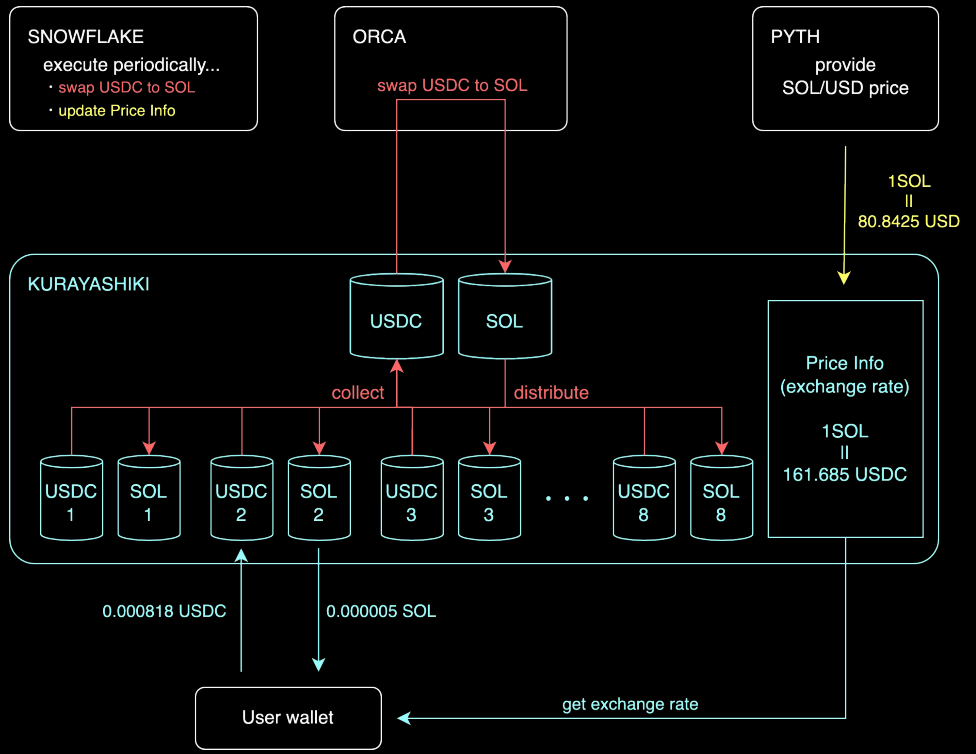
Front-end Architecture

- KURAYASHIKI has one price info account and 8 pairs of USDC and SOL deposit.
- User randomly select one pair of USDC and SOL deposit, and exchange a little USDC to SOL to pay network fee.
- KURAYASHIKI exchanges USDC for SOL using a fixed exchange rate for a period of time. The reason for using a fixed exchange rate is primarily to not sacrifice Solana's parallelism. A typical AMM exchange locks the account for the deposit, so the swap operations are always serialized.
- Users send USDC to USDC deposit and receive SOL from SOL deposit directly. There are no Wrapped SOL related operations, and so compute units can be saved.



Back-end Architecture

- The fixed rate is updated once a day, but adopting a fixed rate has the disadvantage that the service provider bears the risk of price fluctuations. Therefore, the fixed rate uses double rate of the SOL/USD price on the market. This may seem like a crazy rate, but network fees are very cheap in Solana, so double network fees are also very cheap.
- The collected USDC are collectively swapped to SOL by Orca every hour and filled into the SOL deposit.
- Updating the price info account and swapping USDC to SOL is done automatically by using SNOWFLAKE.

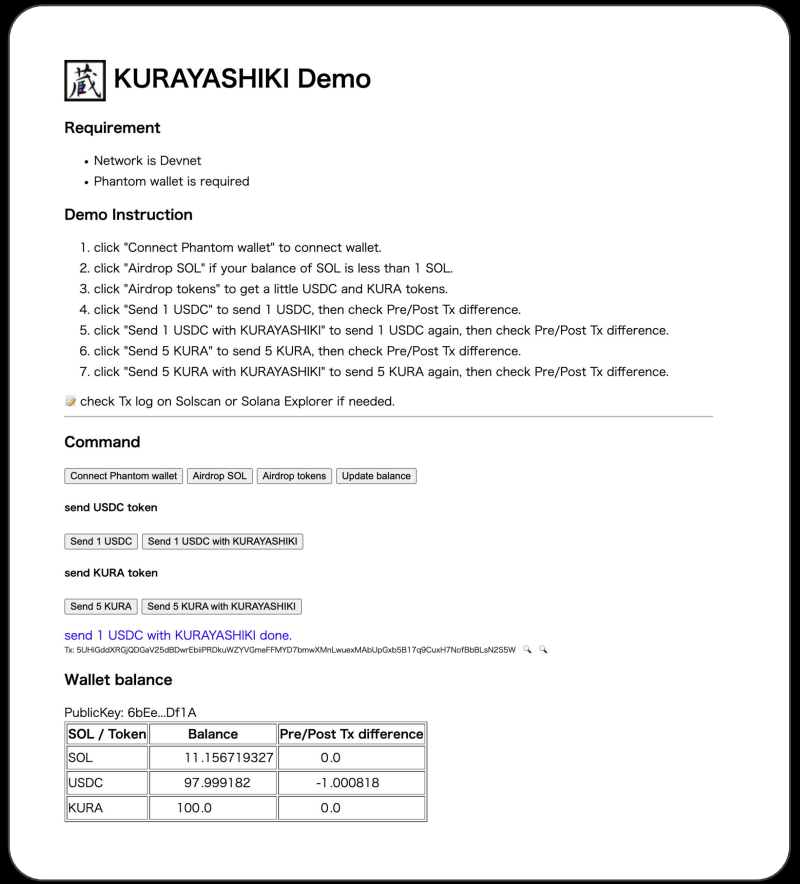


Demo on Devnet

- KURAYASHIKI have been already deployed on Devnet.
- You can try to send 1 USDC with KURAYASHIKI and without KURAYASHIKI respectively.
- Prepare a temporary wallet for test and Phantom.
- All required tokens including SOL can be received by airdrop on the page. We hope you feel free to try it 😉

KURAYASHIKI Demo

(https://everlastingsong.github.io/kurayashiki/kurayashiki_demo.html)



Future development ideas

- Provide NPM package as a library.
- Support more stablecoins other than USDC.
- Compensation for network fees in case of transaction failure.
- Reduce compute units consumption by KURAYASHIKI.
- Issuance of dedicated stablecoins to pay network fees.
- Prepaid network fees.

What is “Kurayashiki”

“Kurayashiki” is a large warehouse set up in Osaka, Tokyo and Kyoto during the Edo period in Japan, where are convenient financial areas for samurai to sell local special goods to earn money. Local special goods were such as rice, beans, miso, iron, paper and so on.

It was inspired by the large number of deposits lined up.

Resource Link

Product page
https://kurayashiki.jimdosite.com/

GitHub repo
https://github.com/everlastingsong/kurayashiki

Demo
https://everlastingsong.github.io/kurayashiki/kurayashiki_demo.html

Thank you for your interest !