Trade financing on RSK blockchain to boost international & domestic trades

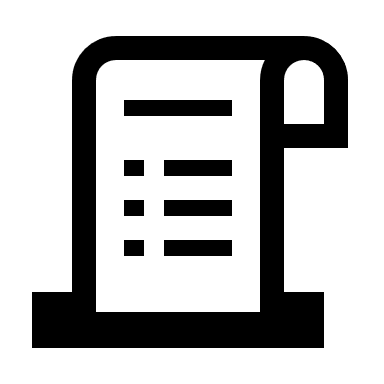
**1. Brief Technical Description of the Solution**

Proposed solution has applications in trade financing. Traditional trade financing process is cumbersome, slow & expensive. Letter of Credit (LC) is a most significant example of trade financing, where the buyer goes to his bank to open LC. There many banks are involved for execution of a LC including issuing bank, advisory bank, and intermediate banks (intermediate banks include confirming bank, reimbursing bank & negotiating bank). Apart from significant fees of all these banks, there are currency exchange fees, and approval of all stakeholders delay LC completion. Hence DeFi for trade financing is highly demanding. Trading, especially export-import is a huge sector of application.

Proposed solution would facilitate a version of LC directly without involvement of banks & exchanges. It needs all the parties (buyer & seller) to have BTC wallet (and thereby the RSK address). A user who is interested to generate an LC can do it through a smart contract platform CreditGuard. CreditGuard shall facilitate pegging for the user i.e. freezing his BTCs & release of RBTCs on RSK blockchain (If the user isn’t capable to do it through pow-peg). CreditGuard shall generate the smart contract for the user along with coupling to the consensus human oracles Shuttlecock. The solution consists of two key components CreditGuard & Shuttlecock along with an information sharing protocol as briefly shown in figure below. There SC stands for smart contract.

**CreditGuard** **Shuttlecock**

A blue and white shuttlecock

Description automatically generated**User**

SC Details

SC terms & Claim Docs

Claim Docs

SC Notification

Claim Docs

SC terms are fulfilled (T/F)

**Receiver**

SC deployment

**RSK Blockchain**

Pegging

BTC to RBTC

Pegging

RBTC to BTC

**Bitcoin Blockchain**

Any user can log in to CreditGuard (<https://creditguard.kalpasrusti.com>) and generate desired smart contract (SC) by providing the SC details including receiver’s address, amount (RBTC), terms etc. After complete inputs from the user, CreditGuard generates code of the SC which can be deployed on the RSK blockchain. Simultaneously, CreditGuard sends notification about generation of LC & related terms to the receiver. Receiver is requested to provide claim documents as per the user desired claims (e.g. bill or lading, inspection report, quality analysis etc.) in order to receive the amount in his wallet.

Each SC through CreditGuard will be coded to have triggering mechanism through Shuttlecock. Shuttlecock is a decentralized community of human oracles which provides Boolean output (true or false) based on the claim defined in the SC against the documents provided by the receiver. If the Claim Docs provided by receiver satisfy the SC, then Shuttlecock triggers payment to the receiver. In case of complex SC conditions, SC just stores the Shuttlecock response to process the payment at later time. Insurance of the consignment can also be looped in the SC based on Shuttlecock response.

Any Bitcoin user can generate the LC even if other parties (i.e. receiver) don’t have any BTC. As any person can open Bitcoin wallet free of cost, traders can open the wallets for ease of trading if a buyer offers LC through RSK. In this way, the Bitcoin ecosystem can expand by adding new users.

Few additional applications of the solution are possible in trade financing.

Here we provide brief details

**1.1 CreditGuard**

It provides generation of customized SC based on the specification by a user. It will provide a simple interface to the user, through which the user can choose format of anticipated SC along with necessary variables. For example, a buyer (of certain goods) can choose the “Letter of Credit” format and enter variables like address of seller, amount of transaction, terms etc. Based on these details, a SC code will be generated by CreditGuard back end, which can be directly deployed on RSK blockchain. CreditGuard will also facilitate BTC to RBTC pegging for user’s account, if needed.

Upon deployment, the receiver (can be multiple) of smart contract will be sent a notification by CreditGuard. This notification will inform him about deployment of the SC and suggest him to complete formalities in order to receive the amount in his wallet. Upon completion of the RBTC transfer to the receiver. When the receiver sends the claim documents as per the SC (e.g. bill of lading), CreditGuard shall forward the copies to Shuttlecock. CreditGuard will forward the Docs to Shuttlecock while referring the SC address on RSK blockchain, and the terms of the SC against which the Docs are submitted. CreditGuard will also forward a copy of Claim Docs to original user so that he can process receipt of the consignment.

If multiple parties are involved in the SC, then CreditGuard will communicate with all of them through the SC notification and Docs forwarding, along with referring Shuttlecock for specific claim in the SC.

**1.2 Shuttlecock**

Shuttlecock (<https://shuttlecock.kalpasrusti.com> ) is a network of human oracles for validation (true or false) of claims based on real word documents. Numerous human accounts belong to the Shuttlecock hub from where each member receives the SC terms and claim documents. The person has to confirm whether the documents satisfy the SC terms in yes/no (T/F) output. All the accounts of Shuttlecock receive the assignment simultaneously, and the response of each account is broadcasted over all the accounts. Any account can monitor the collective decisions. For ease, the execution is done by Shuttlecock hub. Shuttlecock hub communicates with PTF or with the SC. It also concludes collective decision of the accounts for a case (i.e. specific SC terms & Claim Docs received).

Shuttlecock hub forwards the Claim Docs & SC terms to all accounts. There is an algorithm for rapid conclusion based on responses and fees distribution. In certain time frame (say, 10 minutes), Shuttlecock concludes whether the Claim Docs satisfy the SC terms, and it sends the input to the SC on RSK blockchain as an oracle input. Architecture of Shuttlecock is discussed in the video presentation.

**2. Background & Context**

Payment scenario while trading is a crucial issue for the traders. The buyer suspects discrepancies in consignment if payment is done in advance. On other hand, the seller suspects loss or delay in payment if delivery is done in advance. This trade-off exists for all the tradings of goods or services. Such issues are solved by banks through Letter of Credit (LC). LC guarantees the buyer that the payment will get debited only upon delivery of the goods/services, and the seller gets assured that he will indeed receive money if delivery is done by him. LCs are dominantly important in international trades.

Traditionally, LC openings isn’t straightforward and has involved many stakeholders. Involvement of numerous banks makes LCs relatively expensive. Further, for international trades, there are no legal obligations for banks which causes defaults or weak liabilities. Currency exchanges also adversely affect overall process. All these factors can be addressed and better solution can be achieved if we can facilitate LCs on RSK blockchain.

With the solution, any BTC holder can generate a kind of LC in simple way, at lesser fees and with faster execution. As anyone can open BTC wallet free of cost, other parties aren’t needed to have BTC record.

Exports & imports in trillions of USD happen each year. Our solution offers ease of import-export without monetary hurdles (while complying with regulations).

**3. Value Propositions**

Traditional LCs involve many banks including issuing bank, advisory bank, and intermediate banks (e.g confirming bank, reimbursing bank & negotiating bank). All these banks incur some fees. Additionally there are currency exchange fees. Our solution offers same service at much reduced cost to the traders.

Approval of all stakeholder banks delays LC opening & execution. Our solution facilitates faster execution and real time transactions through RSK blockchain.

Credit ratings & liabilities of banks keeps changing and hence relations between banks are dynamic. Hence the traditional ecosystem isn’t constant, but our solution would be a firm process.

Other parties like consignment insurance, inspection, logistics etc. can also be included in the smart contract solution.

Above value propositions are valid for buyers as well as sellers, international as well as domestic. As Bitcoin is well accepted currency, trading with it can be rewarding.

**4. Market Analysis**

The solution is going to enter in market of trade financing. Main product is the letter of credit.

The global letter of credit confirmation market size was valued at USD 4.30 Billion in 2019 and is projected to reach USD 4.99 Billion by 2027, growing at a CAGR of 3.18% from 2020 to 2027.

Above market consists of LC confirmation (incurred by confirming & issuing banks only). Additionally there advising, reimbursing & negotiating sections.

The global trade finance market size reached US$ 48.2 Billion in 2022. And the market is expected to reach US$ 70.0 Billion by 2028, exhibiting a growth rate (CAGR) of 6.2% during 2023-2028. This market also includes that of letter of credit.

All countries of world are connected by international trades. And our solution would facilitate this bridge between the countries.

All the incumbent competitors in this market are banks or traditional financial institutions. Our solution is going to be only of its kind service based on blockchain offering faster, more secure and easy execution of LCs. Thus we expect to grab a significant portion of above market.

**5. Project Plan**

The solution architecture along with the algorithms for key components (CreditGuard & Shuttlecock) are developed.

MVP of the solution is developed (websites & backend processes of CreditGuard, Shuttlecock, and the standard solidity code). We expect to proceed for market entry soon.

Due to resourceful RSK & Bitcoin ecosystems, we expect to enter market with advantage.

**6. Team & Resources**

The team is currently of single person who is having expertise in algorithms, system architecture & business operations. We look forward to expand the team to include or to consult with rsk developers.