Background pattern

Description automatically generated with low confidence

Letter of Credit Solution

**Using R3 Corda**

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# Overview - Letter of Credit

Letter of credit is the cornerstone of international trading, it is essentially a financial contract between a bank, a bank's customer, and a beneficiary. Generally issued by an importer's bank, the letter of credit guarantees the beneficiary will be paid once the conditions of the letter of credit have been met.[[1]](https://www.investopedia.com/terms/l/letterofcredit.asp)

It is predominately used in international trade because factors such as distance, differing laws in each country, and difficulty in knowing each party personally.

# Problems faced in conventional Letter of Credit process

* Trade documents are in form of paper - bills of lading, customs documents, inspection certificates, invoices, warehouse receipts
* High volumes of trade documents are required to verify purchases, payments, deliveries
* Operational and logistic difficulties arise when multiple parties are involved in a transaction (exporter, importer, import-lender, exporter-lender, shipping company, receiving company, financiers, and more).
* Paper and manual data checks severely hamper transparency and accuracy and increases operating costs
* Chances of fraud and litigation due to falsification of paper documents.
* Delays in payment to buyers and suppliers due to the time-consuming process.
* Absence of insight into the movement of goods.
* For financial institutions, these obstructions can lead to denial of bank credit lines to small businesses, affecting global commerce.

# Letter of Credit (LOC) solution using Blockchain

Key features of blockchain that enable the solution are listed below. More details are provided in [[2]](https://www.zeeve.io/blog/blockchain-reshaping-trade-finance/)

* Blockchain contains single version of truth with respect to entire transaction data.
* Availability of information from multiple parties on Blockchain, provides a real-time and transparent view into the progress of the transaction.
* Reduced counterparty risk: Bills of lading are tracked through Blockchain, eliminating the potential for double spending.
* Smart Contract enables automated settlement and reduced transaction fees.

# Leveraging R3 Corda features in LOC solution

Key features of R3 Corda that enable the solution are listed below. More details are

provided in [[3]](https://www.linkedin.com/pulse/blockchain-enabled-letter-credit-hamzeh-alavirad/?articleId=6482936086313074688)

* **Permissioned:** All the parties present in the corda network are known to each other and data is shared only between the two transacting parties and is encrypted using transport-layer security (TLS) and confidentiality is maintained.
* **Real-Time:** Corda provides instant transaction finality unlike other blockchains. Information stored can be reviewed and approved in real time, reducing overall time to complete the process.
* **Validity and Uniqueness:** Using Smart Contract and Notary.

# Demo Setup

* Clone the Github repository using: git clone https://github.com/davidawad/LetterOfCreditBackup.git
* In the LetterofCreditBackup directory, Run the nodes by running ./gradlew buildExecutableJar (osX) or gradlew buildExecutableJar (Windows)

# Executing the Demo

* In the LetterofCreditBackup directory, Run the node driver using java -jar kotlin-source/build/libs/eloc-demo.jar
* Once all the nodes are started, go to http://localhost:10014/web/loc/.
* Follow the script to complete the demo: <https://github.com/corda/LetterOfCredit/blob/release/script.md>.[4]

# Understanding the Demo

Refer to the presentation and video available at:

* [https://www.slideshare.net/MarketingTeamr3/supporting-trade-finance-with-letters-of-credit-on-corda](%5b5%5d%09https:/www.slideshare.net/MarketingTeamr3/supporting-trade-finance-with-letters-of-credit-on-corda)
* <https://www.youtube.com/watch?v=La6xIDB4a8Q>

## States

* In this demo there are the following States:
  + Bill of Lading State
  + Letter of Credit Application State
  + Letter of Credit State
  + Purchase Order State

## Flows

* In this demo there are the following Flows:
* Create Purchase Order Flow
* Apply For LoC Flow
* Approve LoC Flow
* Create BoL Flow
* Ship Flow
* Seller Payment Flow
* Advisory Payment Flow
* Issuer Payment Flow

## Contracts

* In this demo there are the following Contracts:
* Purchase Order Contract
* Letter Of Credit Application Contract
* Letter Of Credit Contract
* Bill Of Lading Contract

# References

1. https://www.investopedia.com/terms/l/letterofcredit.asp
2. https://www.zeeve.io/blog/blockchain-reshaping-trade-finance
3. https://www.linkedin.com/pulse/blockchain-enabled-letter-credit-hamzeh-alavirad/?articleId=6482936086313074688
4. https://github.com/davidawad/LetterOfCreditBackup