Design - Rollback Transaction Kafka Producer

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Table of Contents

1 1. Abstract:

This document describes the design aspects of work related to Rollback Transactions being sent as Kafka Message to SAE for Chargeback (CB). This is common for CSI also. The Schema for this message is in sync with one being used by SAE Consumer.

2 2. High Level Process:

As the last step in process of Rolling back Transactions for Chargeback, this Process gets a list of OIDs from Labeling process. This list is checked against any failed Kafka transactions from past and the resultant final set is joined with Hive tables to pull out OIDs for New customers only and being Fraudulent.

Then a Kafka message is created and sent to SAE for each of these OIDs. All Successful and Failed Kafka messages are logged in for audit and re-run purposes in case of Failed Kafka messages. SAE doesn't refer to any HIVE table and works on the Kafka messages it receives.

3 3. Kafka Configuration and ACI Standard Details:

Below are the ACI Standards and Process to follow for Kerberos and Schema Registry.

- Kerberos
- Schema Registry

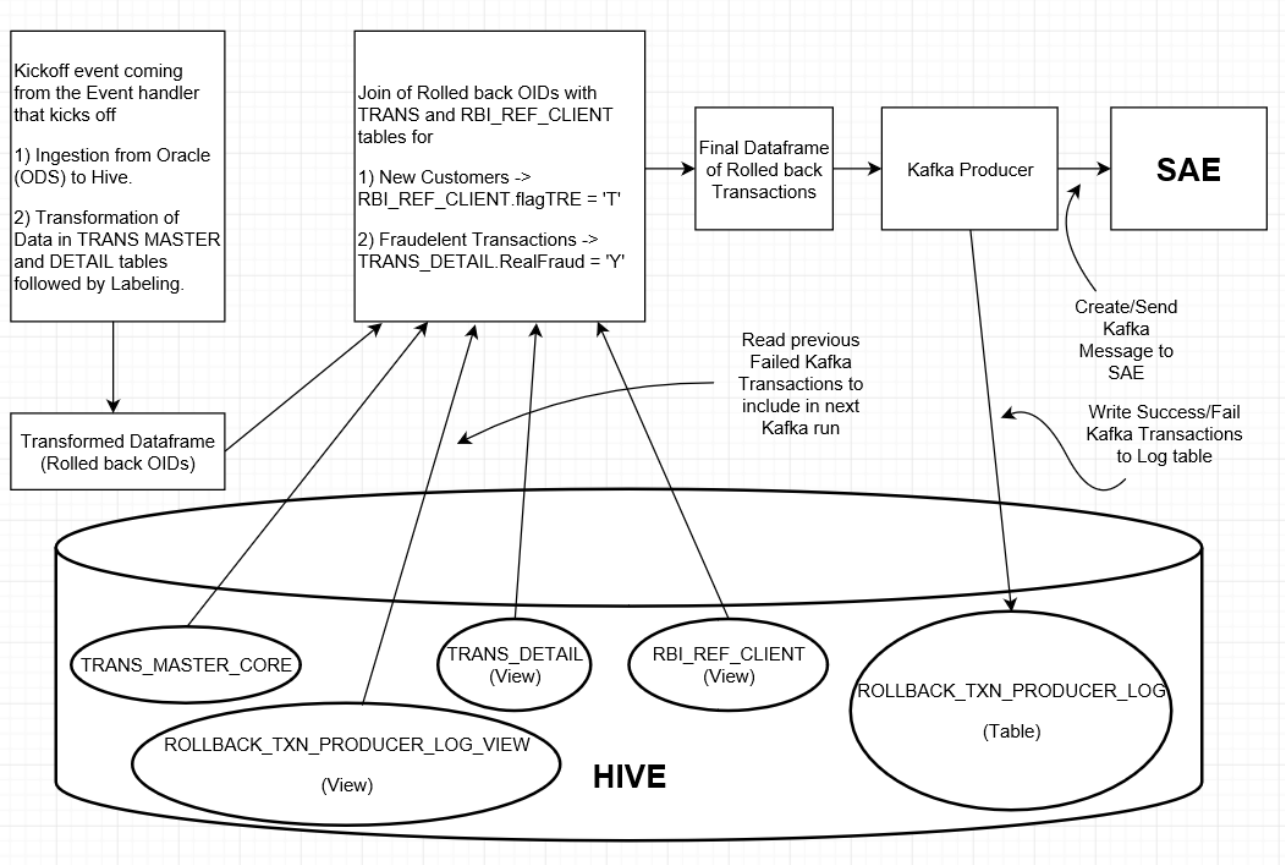
Kafka Details from Wiki Page:
https://wiki.aciworldwide.com/display/RMS/Kafka

Kafka Broker and Schema Registry details:[1]
Below Dev servers were used for the development:

Server	Function
https://cov3lddbsgem03.ose.am.tsacorp.com:8081[2]	Schema Registry
cov3lddbsgem04.ose.am.tsacorp.com[3]:9093	Broker - kafka
cov3lddbsgem05.ose.am.tsacorp.com[4]:9093	Broker - kafka
cov3lddbsgem06.ose.am.tsacorp.com[5]:9093	Broker - kafka

1 https://wiki.aciworldwide.com/display/RMS/Kafka
2 https://cov3lddbsgem03.ose.am.tsacorp.com:8081/
3 http://cov3lddbsgem04.ose.am.tsacorp.com/
4 http://cov3lddbsgem05.ose.am.tsacorp.com/
5 http://cov3lddbsgem06.ose.am.tsacorp.com/

4 4. Dataflow Diagram:



5 5. Implementation:

We need to create a Kafka message for Rollback transactions for Chargeback (CB) (same code will work for CSI also)

- For new customers (RBI_REF_CLIENT.FlagTRE = 'T')
- For Fraudulent Transactions (TRAN_DETAIL.RealFraud = 'Y')

This message has 158 schema fields which can be retrieved from

1. TRANS_DETAIL
2. TRANS_MASTER_CORE
   which have to be filtered with
3. Spark dataframe with OIDs after Labeling: Output of the Transformation and Labelling
   joined in UNION (to avoid duplicates)
4. which have to be filtered withfrom the Failed Kafka Transactions from previous Kafka runs in below view:
   ROLLBACK_TXN_PRODUCER_LOG_VIEW

The resultant Dataframe has to be used to created such that

- One kafka message is generated for each record in the final dataframe
- Each message is pushed to the Topic --> lim-hadoop-rollbacktx

6 5. Points to note (Technical):

1. The Topic is automatically created when we run our code, we don't need to create a Topic explicitly.
2. The Schema has to be registered in the Schema registry which has to be passed to the downstream SAE for their perusal. The Schema used is <tx-updates.avsc>
3. Broker and Schema Registry details will have to be pulled from Conf file.
4. One Kafka message is created for each row of OID. And any Kafka message written successfully or Failed, is logged in table ROLLBACK_TXN_PRODUCER_LOG with
    a. Status = S for Success
    b. Status = F for Failure
5. As Rollback Transactions code is same for Chargeback (CB) and CSI, it checks below 2 conditions
    a. TRANS_DETAIL.RealFraud = Y for Fraudulent Transactions
    b. RBI_REF_CLIENT.FlagTRE = 'T' for New Customers
6. Eventhough above check isn't needed for CB Transactions, we still check as CSI might send data for
    a. TRANS_DETAIL.RealFraud = 'Y' or 'N'
    b. RBI_REF_CLIENT.FlagTRE = 'T' or 'F'
7. A Test Consumer will be created to consume the message from Kafka with the Kerberos and Schema Registry details.

7 6. Sample code (including Kerberos and Schema Registry settings) and Avro Schema from SAE:

Below are attached Sample Code and the Schema file used by SAE.