BDM Proposal: Realtime Fraud Detection System

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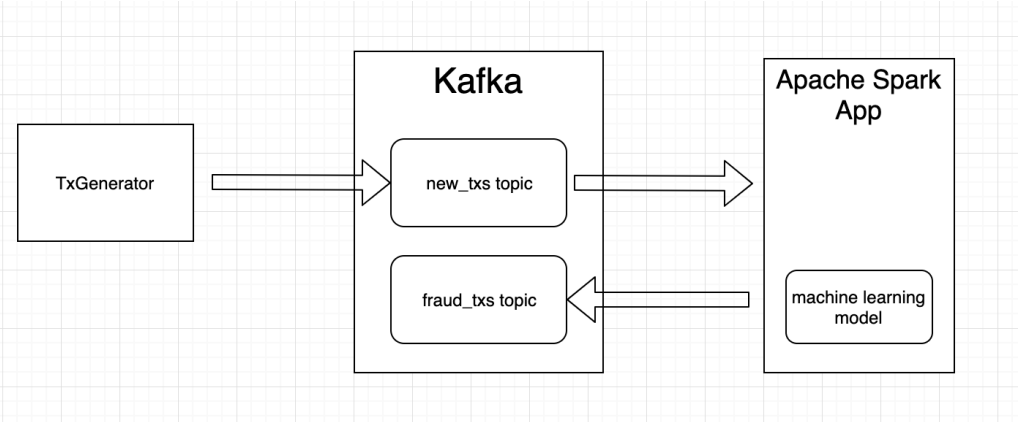
Our aim is to create a real time fraud detection system. We're planning to use dataset from a recent Kaggle competition (available at: https://www.kaggle.com/c/ieee-fraud-detection). The technology stack will consist of Apache Spark, Apache Kafka, Docker and Python as programming language.

Our data consists of the following two tables which are joined together by a unique transaction identifier and divided into training and test datasets:

- Identity: consists of 41 features, which represent identity information such as the network connection information (IP, ISP, Proxy, etc) and digital signature (UA/browser/os/version, etc) associated with transactions.
- Transaction: consists of 394 features, interesting features are different payment timedeltas and payment amount as well as credit card information, the purchased product and information about the purchaser.

Architecture for the real-time processing:



- TxGenerator - imitating real time transactions & pushing into ‘new_txs’ topic.
- Application/Script for training machine learning model
- Apache Spark App for detecting fraud transactions in real time & pushing back into ‘fraud_txs’ topic.

Team members responsibilities:

- Set up the first flow between all elements of the above architecture. [PAWEL]
- Create the TxGenerator application [PAWEL]
- Conduct data preprocessing [PAWEL, MARTIN, TOBIAS]
- Create the machine learning model [MARTIN, PAWEL]
- Create the Apache Spark app [MARTIN, TOBIAS]
- Presentation and report [MARTIN, TOBIAS]

Prefered time slot for presentation:

We would prefer the first time slot for our presentation (on date: Dec. 27, 2019).