Defending Blockchain from Malicious Contracts Using Anomaly Detection

DUY HUYNH · SON HOANG DAU · XIAODONG LI

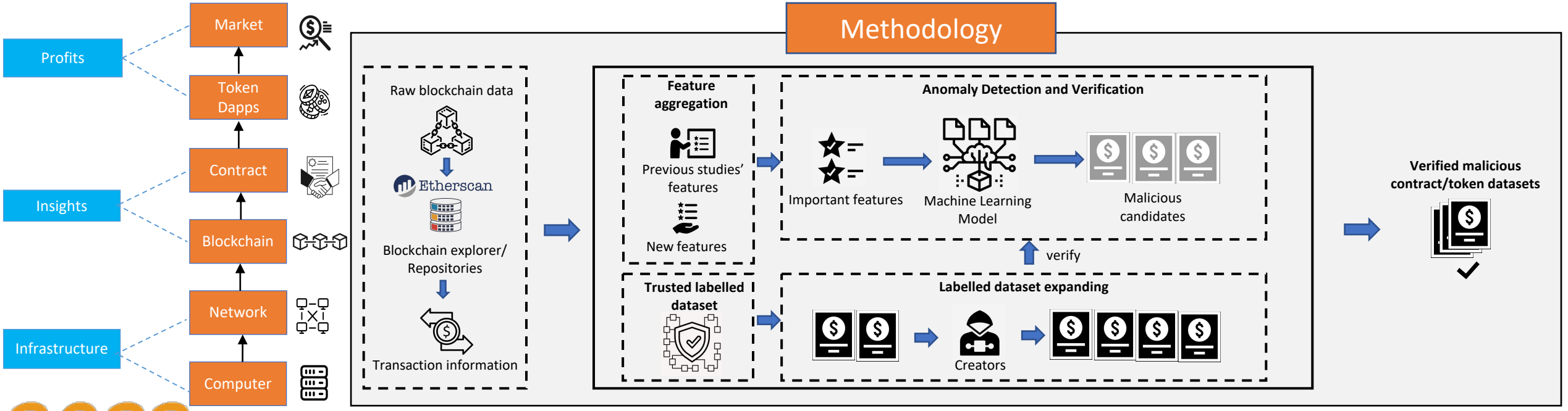
Introduction

PROBLEM

- Blockchain became a “paradise” of latent financial scams along to its rocket development
  - E.g: Ponzi, Phishing, Honeypot, Wallet theft, Rug-pull, etc
- Crypto investors lost millions of dollars by scam tokens and malicious contracts

MOTIVATION

- Previous studies focus on solving problems at infrastructure and operation levels while financial scams widespreads mainly at profit level
- Many studies aim at tackling each kind mallicious contract using classification, but those requires labeled datasets
- Anomaly detection is widely used in financial domains and does not require labelled datasets which are unavailable in new emerging blockchains



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What is done so far

Data collection

- We first tried on Ethereum blockchain data
- 8 million blocks data was downloaded from etherscan:
  - 480 million normal transactions
  - 690 million internal transactions
- Labelled data set was downloaded from Xblock.pro repository
  - 3795 contracts with more than 200 Ponzi contracts
- We grouped transaction information by contract address and saved them as CSV format to facilitate further steps

Features aggregation

- Aggregated new features base on different aspects
  - Eg: Transaction, Time series, Creator, etc.
- Data nomarlization
- Doing statistic to show features' characteristic

Future works

- Choosing different anomaly detection techniques to solve the problem
- Finding the most appropriate model and the most important features list
- Verifying the out-come dataset and characterizing mallicious contracts

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