

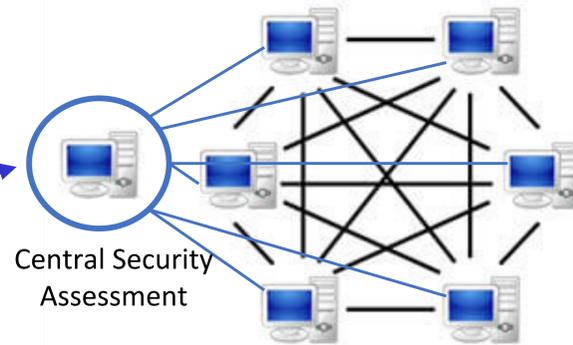


1. Problem Statement

Current computing applications are distributed.
Their security & risk Assessment is not!

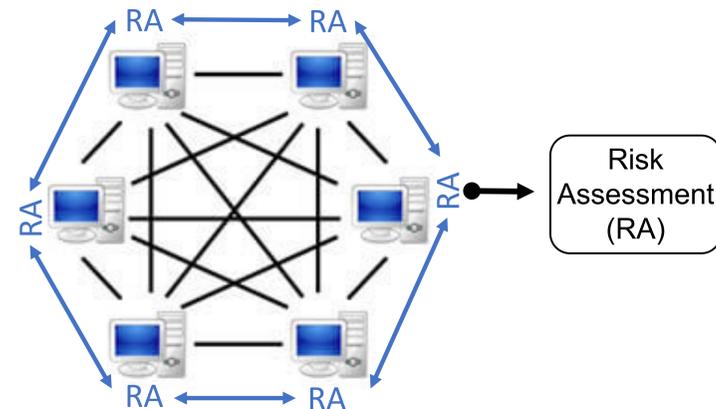
Issues:

1. Single point of failure
2. Trust issues



2. Our Goal

Build Distributed and Collaborative Security Assessment solutions



Technologies:



Blockchains

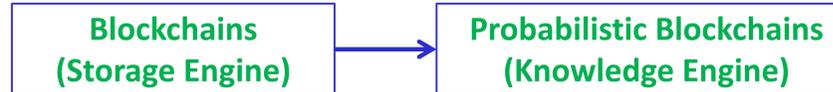


Trust Management

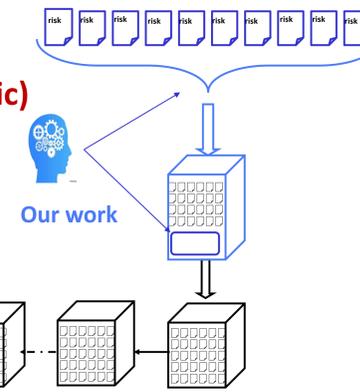


Crowdsourcing

3. Research Innovations

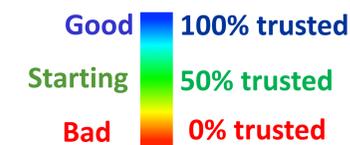


- Probabilistic transactions
Transactions = Assessments of submitted requests (probabilistic)
- Blockchain' knowledge:
When forming a blocks, include "summary" of assessments
- Validate the block and add to the chain

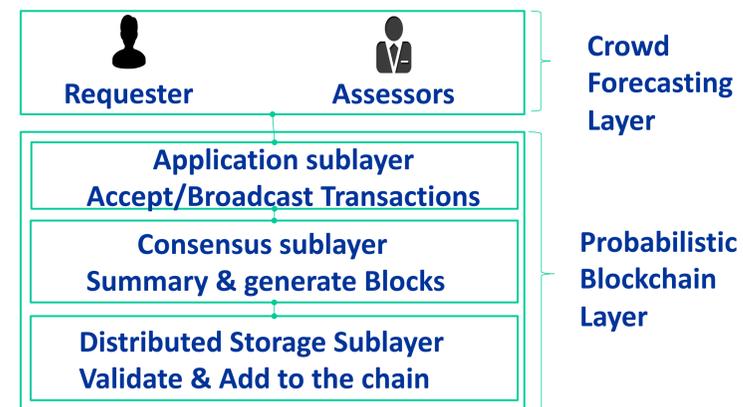


Trust Management

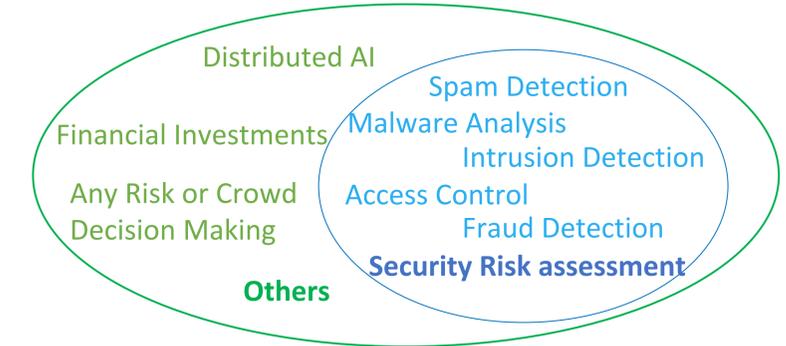
Assessors get a "trust" level based on their performance



Crowdsourced Forecasting of Risks

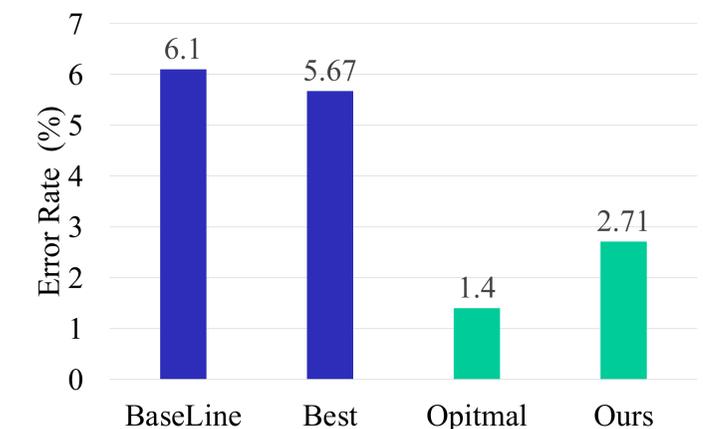


4. Applications



5. Case Study: Passive Malware Detection

- Assessors collaboratively decide if an application is malicious
- Machine Learning Malware Detection Models (trained on Drebin Dataset)
- A probabilistic individual decision is submitted to the blockchain (e.g., an application is 50% malicious)
- The blockchain summary is the weighted mean of probabilities where weights are reputations



Collaborative decision making is better than any individual decision