

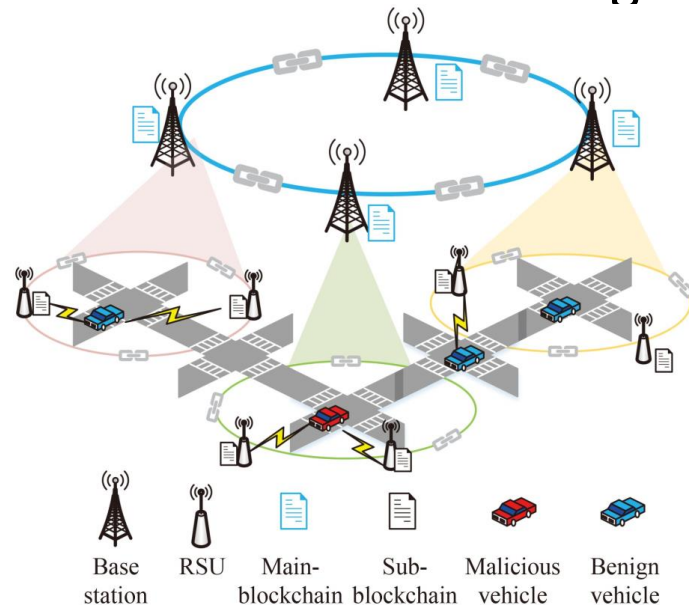
Exploiting Blockchain for Dependable Services in Zero-Trust Vehicular Networks

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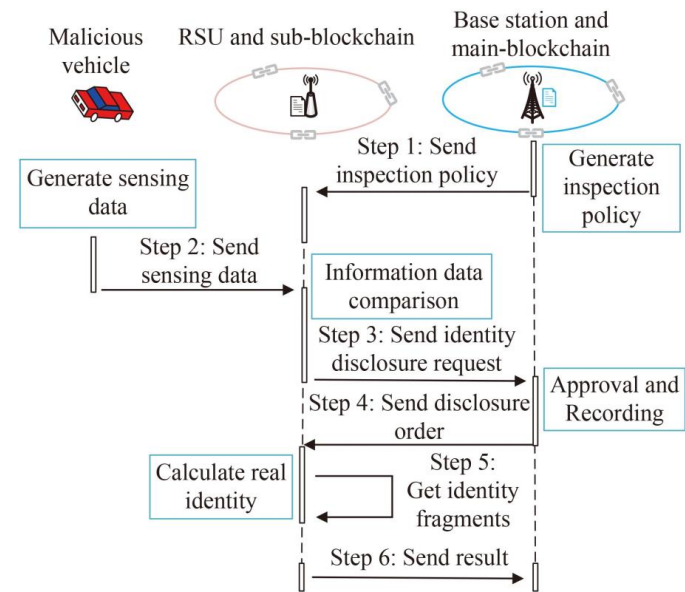
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Problems & Ideas

- Problems of conventional vehicular networks:
 - The reliability and security of the vehicle-and-roadside collaboration will directly affect the transportation safety.
 - Vehicles uploading false traffic information cannot be regulated and punished.
- Ideas: A malicious vehicle identity disclosure scheme that combines Shamir's Secret Sharing program with Smart contracts and zero-sum game theory.



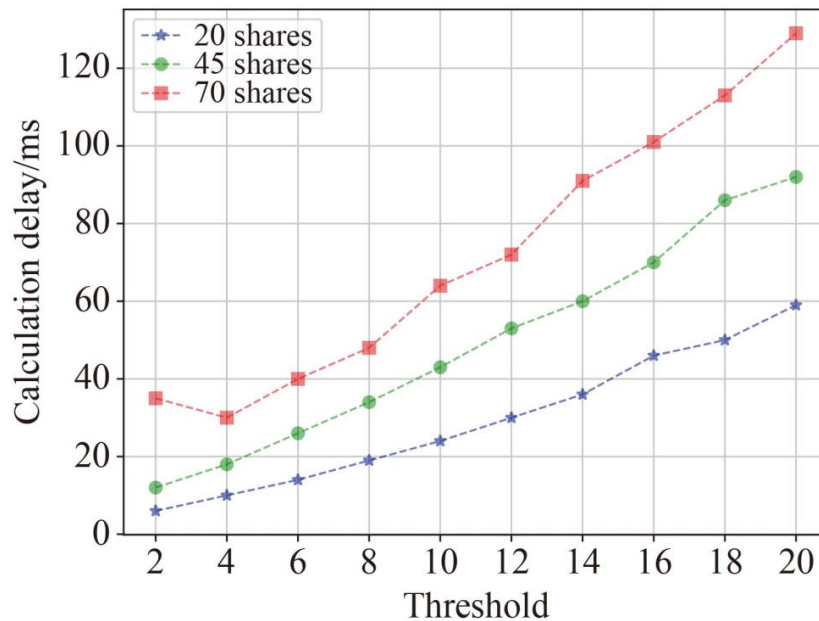
System architecture



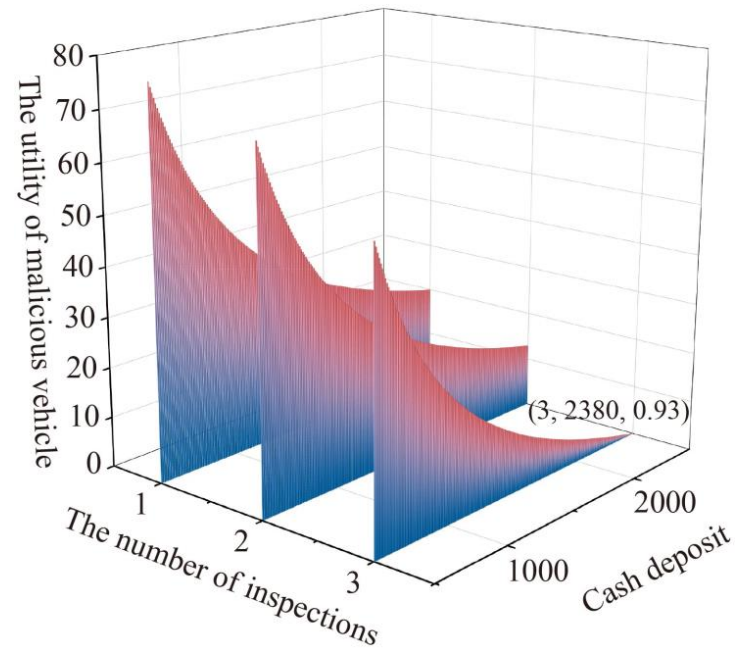
Malicious vehicle identity disclosure process

Main Contributions

- Contributions:
 - A malicious vehicle identity disclosure mechanism based on the Shamir secret sharing scheme.;
 - an RSU computation incentive mechanism is devised, and a zero-sum game-based inspection mechanism is applied;
 - Blockchain and smart contract are exploited to build up a trust bridge that connects the different geographic regions.



SSS identity disclosure schemes under different thresholds



Inspection strategy based on zero-sum game