Intelligent Broadcast Protocol

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Lecture Outline

Outline

Introduction

- VANET is an
  1. Intelligent Vehicular Ad Hoc Networking.
  2. uses WiFi IEEE 802.11 and
  3. WIMAX IEEE 802.16
- It is easy and effective communication between vehicles with dynamic mobility.

Introduction

- To provide communication among nearby vehicles and
- between vehicles and nearby fixed equipment,usually described as roadside equipments.
- The vehicle involved in an accident will propagate a warning message to all the surrounding vehicles.
- And to avoid chain collision.

Outline

Literature Survey

- How to deliver the broadcast message to nodes within a single communication range with the highest possible reliability which will be designated as reliable protocols and
- How to deliver the broadcast message to the entire network which will be designated as dissemination protocols.
- Reliable protocols.

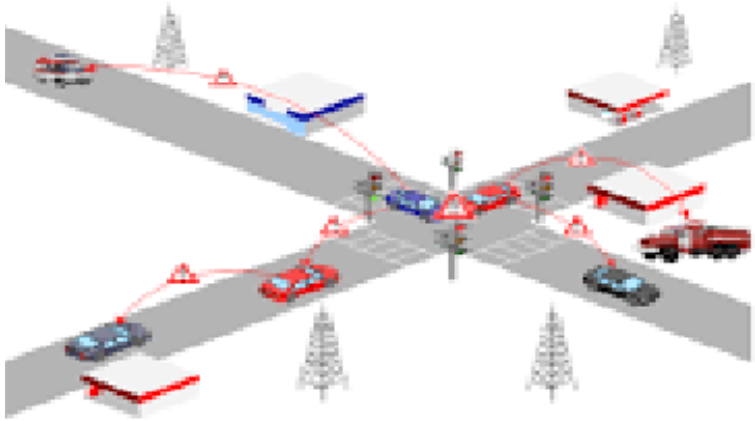
Outline

Architecture

- Broadcast service in VANETs is fundamentally used to propagate urgent information among vehicles eciently and generate a controlled amount of trac.
- The vehicle involved in an accident will transfer a warning message to all the surrounding vehicles and avoid chain collision.
- Flooding and Naive Broadcast are some of the conventional broadcast techniques used for the purpose.

Architecture

- These techniques usually face the Broadcast Storm problem, where excessive number of broadcast packets is generated.
- They also face message redundancy, causing generation of duplicate messages, and higher message delivery latency, causing delay in message transmissions.



Outline

Stamping broadcast algorithms

- Basic Stamping
- Advanced Stamping
- Hybrid Stamping

Basic Stamping

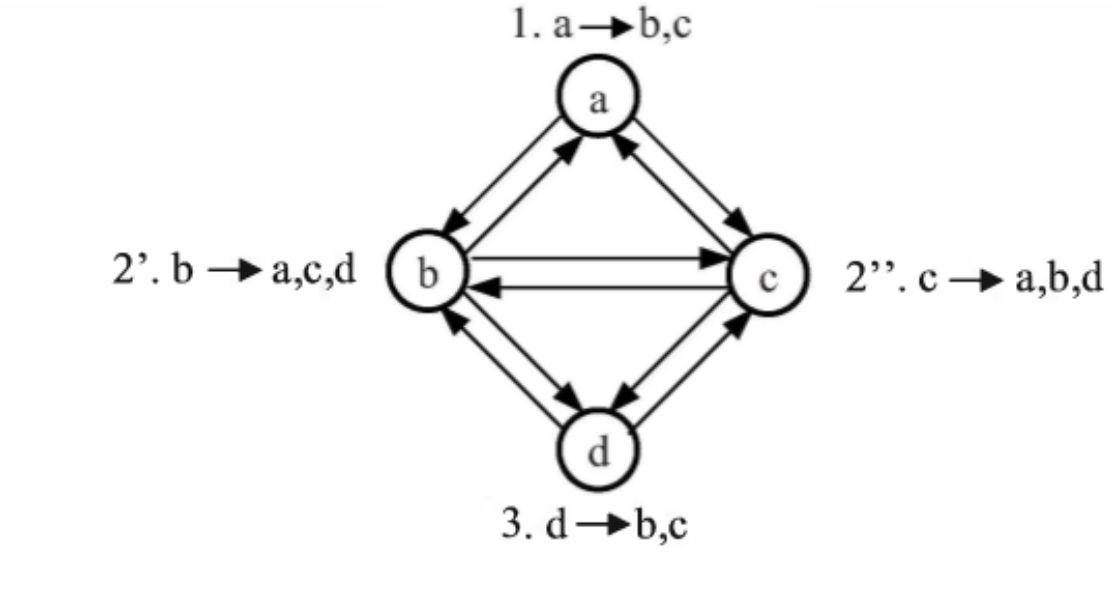


Figure: Broadcasting with Basic Stamping

Advanced Stamping

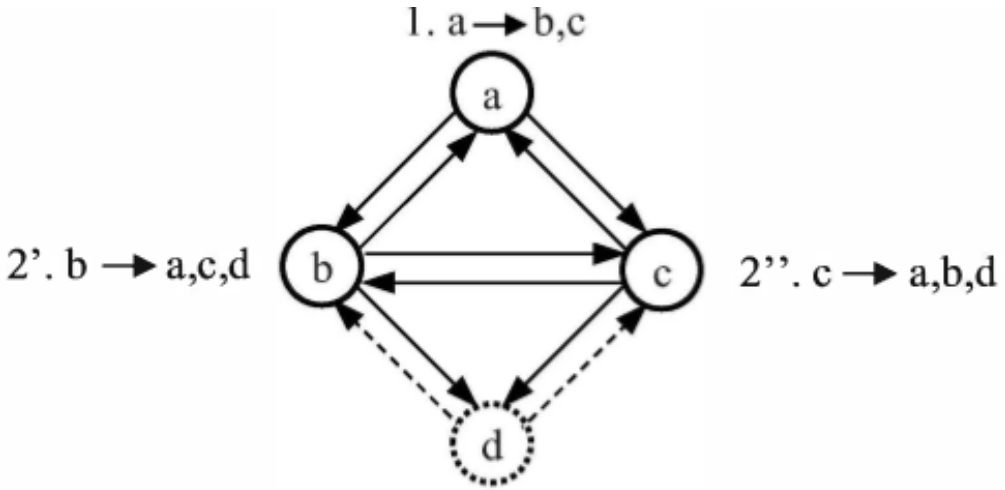


Figure: Broadcasting with Advanced Stamping

Hybrid Stamping

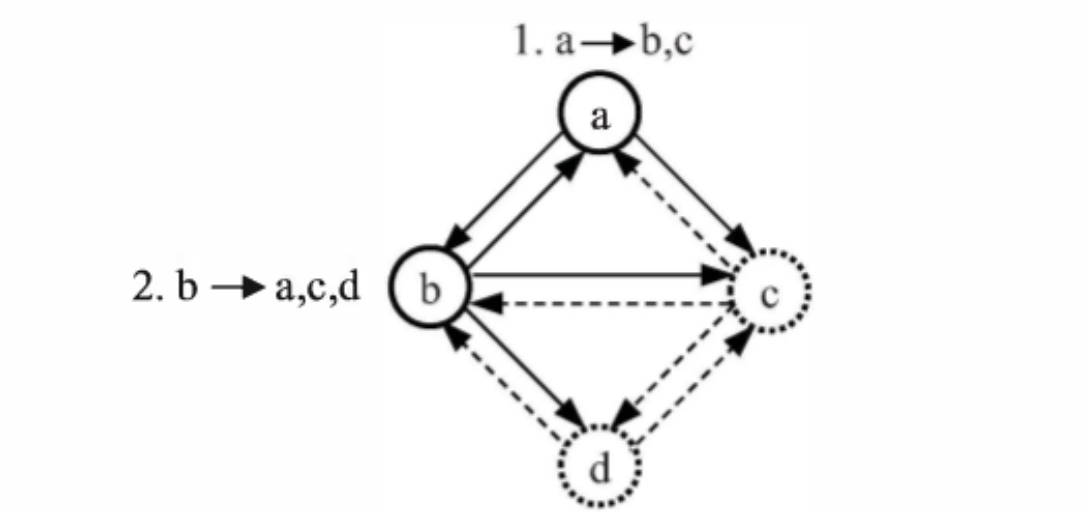


Figure: Broadcasting with Hybrid Stamping

Outline

Application

- Intelligent Broadcast Protocol
  1. To develop a protocol for faster propagation of warning messages.
  2. To develop a protocol which can be used in CCA application.
  3. To increase the highway safety by reducing the chain collisions.
  4. Satisfying the requirements of CCA Applications.

Outline

Advantages

- Easy to communication for vehicle to vehicle, vehicle to infrastructure and roadside units.
- It is avoid the accidents.
- Reducing the number of collisions.
- Faster and ecient propagation of warning messages.
- Deal with the dynamic topology of VANETs.
- Generate a lesser amount of trac.
- Decrease the delivery latency and redundancy.
- The IEEE 802.11p is an approved to add wireless access in vehicular environment.
- Data exchange between high speed vehicles and between the vehicles and roadside units.

Outline

Disadvantages

- It is acquire more delay.
- Message transfer time collision is occur.
- No.of accidents on road.

Outline

Future Scope

- The role of mobility of vehicles in the performance of any dissemination technique is very important. The future work will have to be concentrated on adapting the protocol in dierent mobility scenarios.
- Also, increasing the priority of the warning messages can even more increase the eciency of the protocol, which is left as a part of future work.

Outline

Conclusion

- The protocol implemented clearly has an upperhand over the naive broadcasting and ooding technique when it comes to faster propagation of warning messages and generation of network trac causing a controlled amount of message redundancy and delivery latency.
- Looking at the share of chain collisions in the casualties caused by accidents every year, it becomes necessary for us to use the networking concepts to help the drivers get notied about the situation as soon as possible which will help them to react on time and hopefully save their lives.

Outline

References

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Thank You...