

Emergency Messages in VSNs

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- Introduction
- Problems
- EWM Dissemination in VSNs
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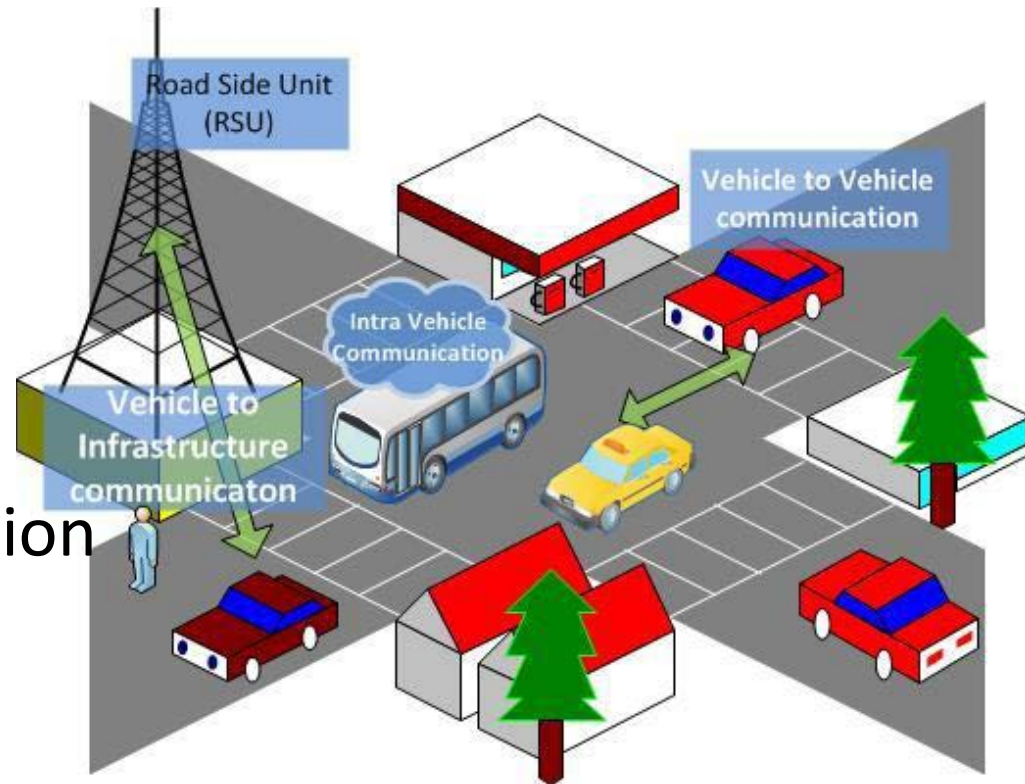
Introduction

- Emergency Situations

- Accidents
- Natural Disasters

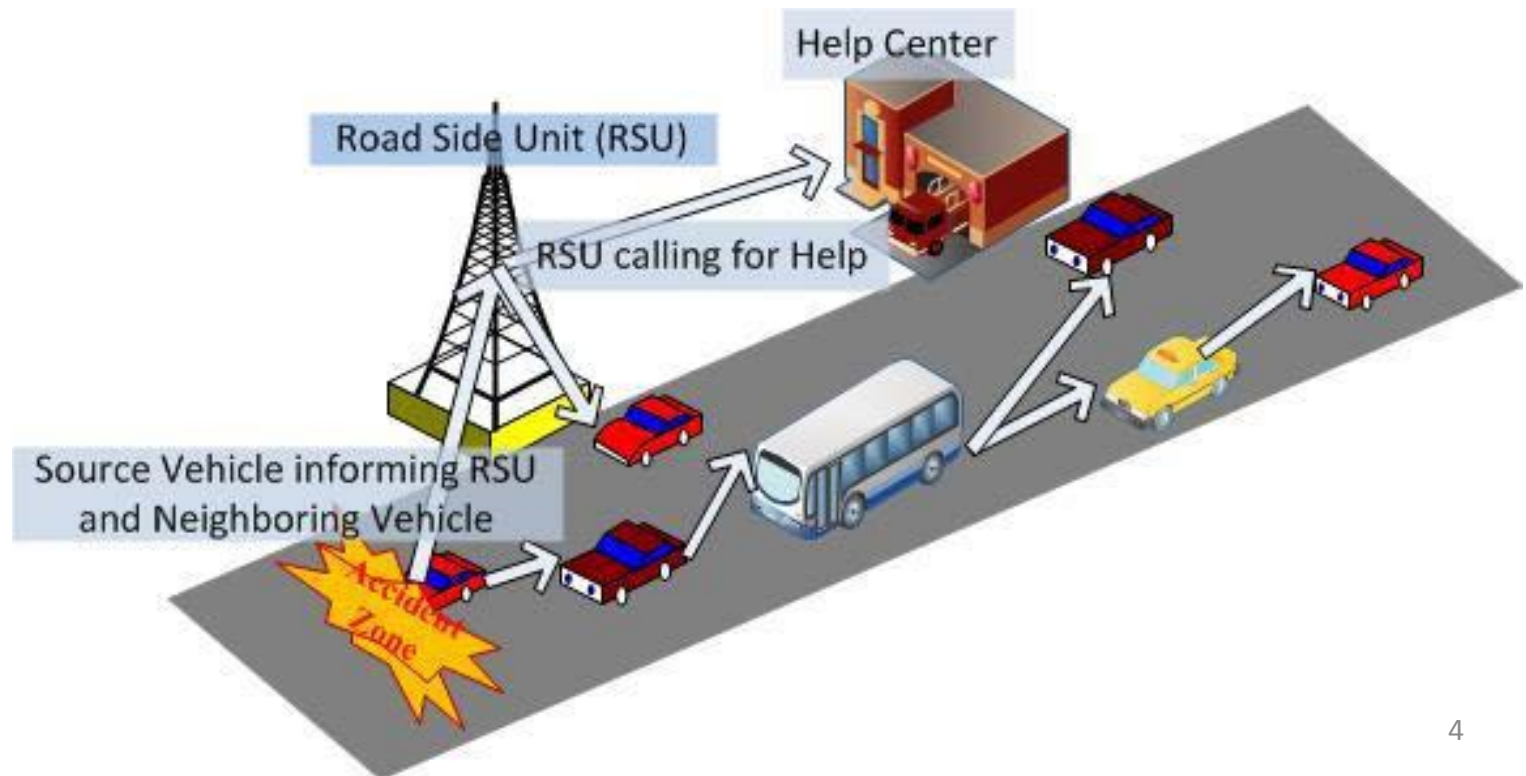
- VANETs

- Vehicular communication
- Safety purpose
- Infotainment purpose



Introduction

- Emergency Warning Messages
 - Issued by source vehicle
 - Broadcast to effected area
 - V2V
 - V2I



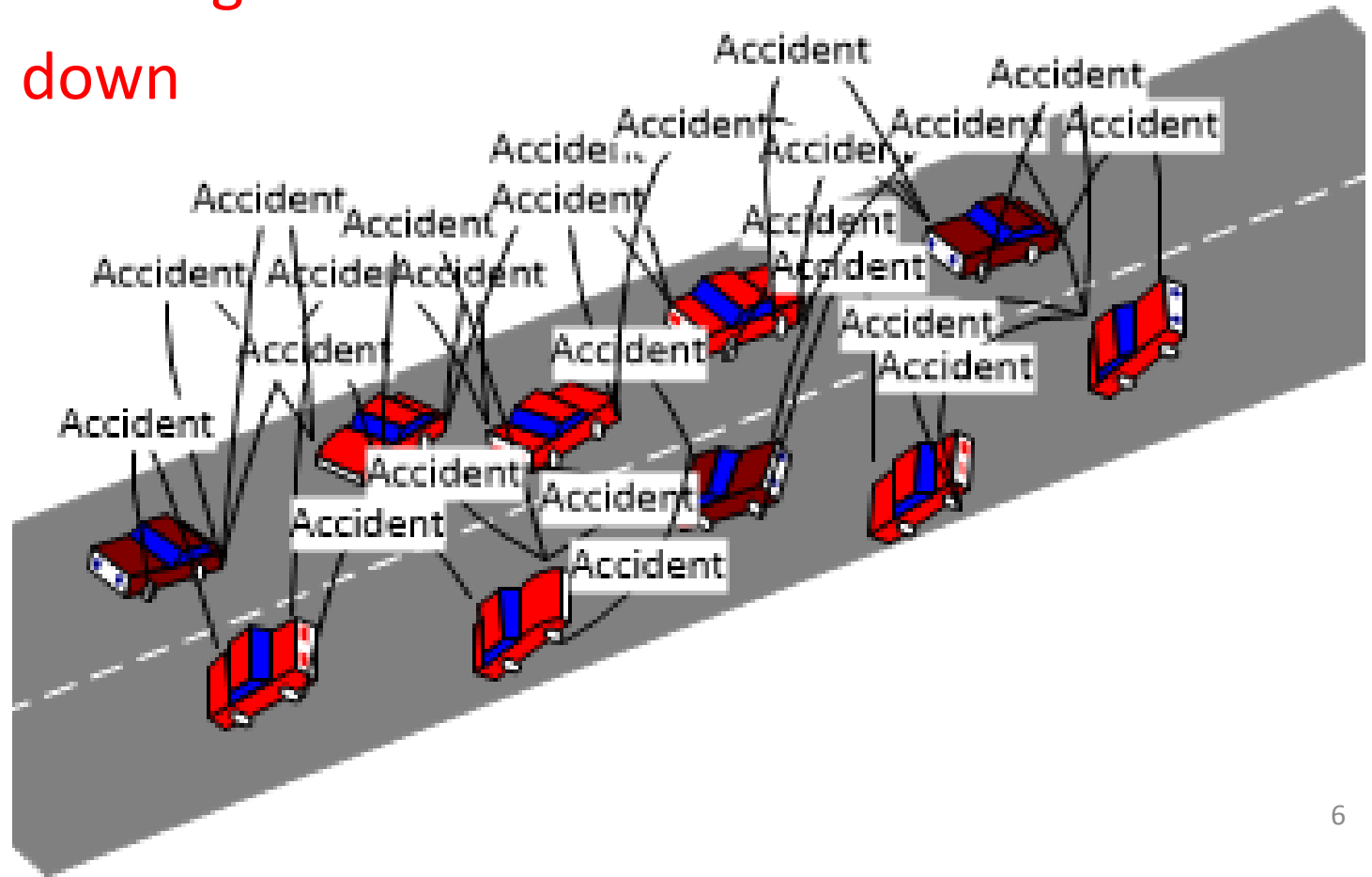
Introduction Contd...

- Flooding [1]
 - Every Node rebroadcasts every message
 - Faces Broadcast Storm Problem
- Epidemic [2]
 - Shares all messages in buffer upon each contact
 - Negotiates which messages to share
 - Creates Delay, Overhead

1. K. Obraczka, K. Viswanath, and G. Tsudik, "Flooding for reliable multicast in multi-hop ad hoc networks," *Wireless Networks*, vol. 7, no. 6, pp. 627–634, 2001
2. A. Vahdat and D. Becker, "Epidemic Routing for Partially Connected Ad Hoc Networks," in *Technical Report CS-200006*, Apr 2000.

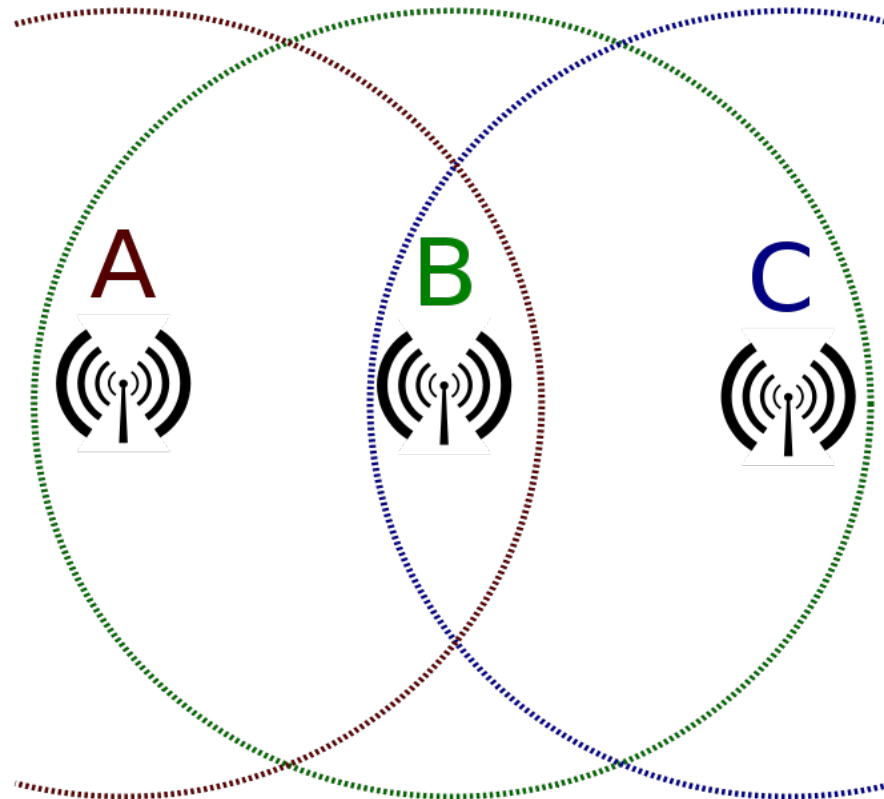
Broadcast Storm Problem

- Every node rebroadcasts
 - Network congestion
 - Crash down



Hidden Node Problem

- Access Point (AP) knows about Nodes
- Nodes may not know about AP
 - Collision
 - Distortion

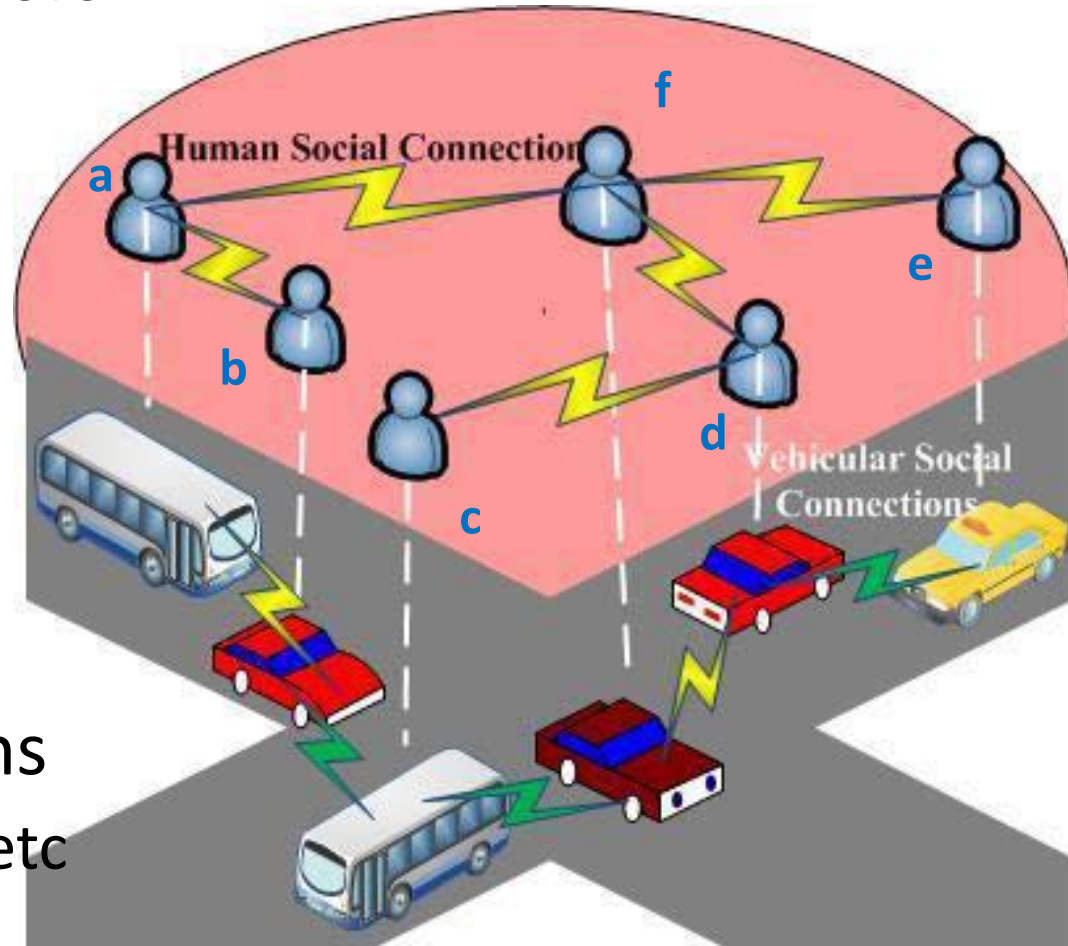


Vehicular Social Networks

- Exploiting human factors
 - Social relationships
 - Direct/Indirect

- Vehicular Mobility
 - Common routes
 - Patterns

- Communication means
 - WAVE/DSRC, cellular etc





Our Paper on VSN

- “Vehicular Social Networks: Enabling Smart Mobility”
 - In *IEEE Communication Magazine*
- Smart Cities
 - Integration of innovative technologies for management of city’s facilities

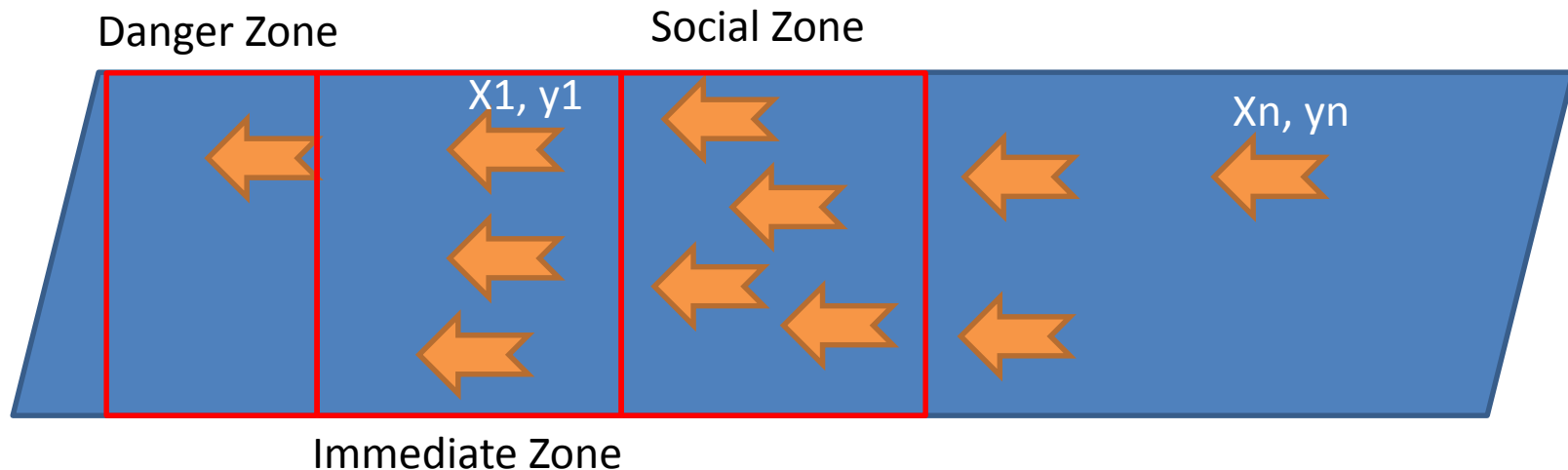


Challenges for EWMs in VSNs

- Selfishness
 - Social selfishness
- Delay
- Simulation and Analysis
 - Real Databases cannot be used
 - Relies on simulation

Proposed Method

- Vehicular Location Data
 - Coordinates, distance b/w two vehicles from GIS
- Social features
 - Centrality, similarity, community etc
- Suitable dissemination strategy





Simulation Tools

- VANETMobisim
 - Generates traces of vehicles mobility
 - Java based application
 - Xml coding

- NS2
 - Famous network modeling simulator



Conclusion

- EWMs dissemination is important
- Different problems exist
- Solutions based on VSNs have to be explored

Suggestions are Welcome!

Any Questions?