MORA Routing and Capacity Building in Disruption-Tolerant Networks

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Seminar: Ad Hoc Networks

- Seminar: Ad Hoc Networks WS 08/09
- chair: Computer Networks and Telematic
- University Freiburg
- The paper is written by Burn, Brock and Levine
- they are members of the Department of Computer Science of the University of Massachusetts Amherst

What is DTN?

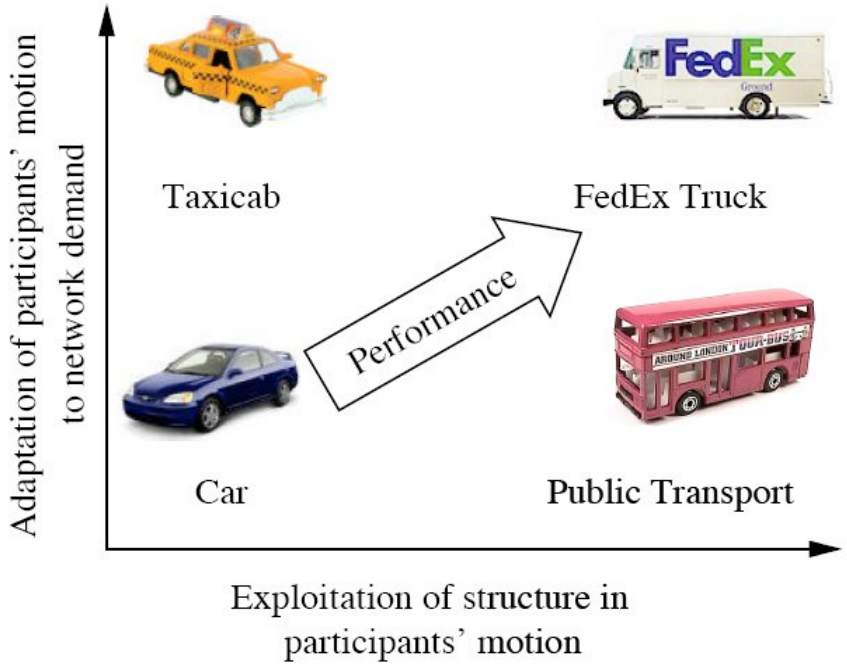
- DTN = Disruption-Tolerant Network
- It is used in areas where infrastructures are missing
- It is a mobile AdHoc-Wireless-Network

What is DTN ?

- Performance depends on the number of participants, their storage capacity, communication capabilities, and movement patterns
- In the paper, the focus is on the performance factor (movement patterns of participants)

What is the problem?

- the participants operate like cars in normal traffic



- it is difficult to coordinate the movement of the participants

Improvement

- Goal: To improve the performance
- metric : bandwith and delay

How to improve performance?

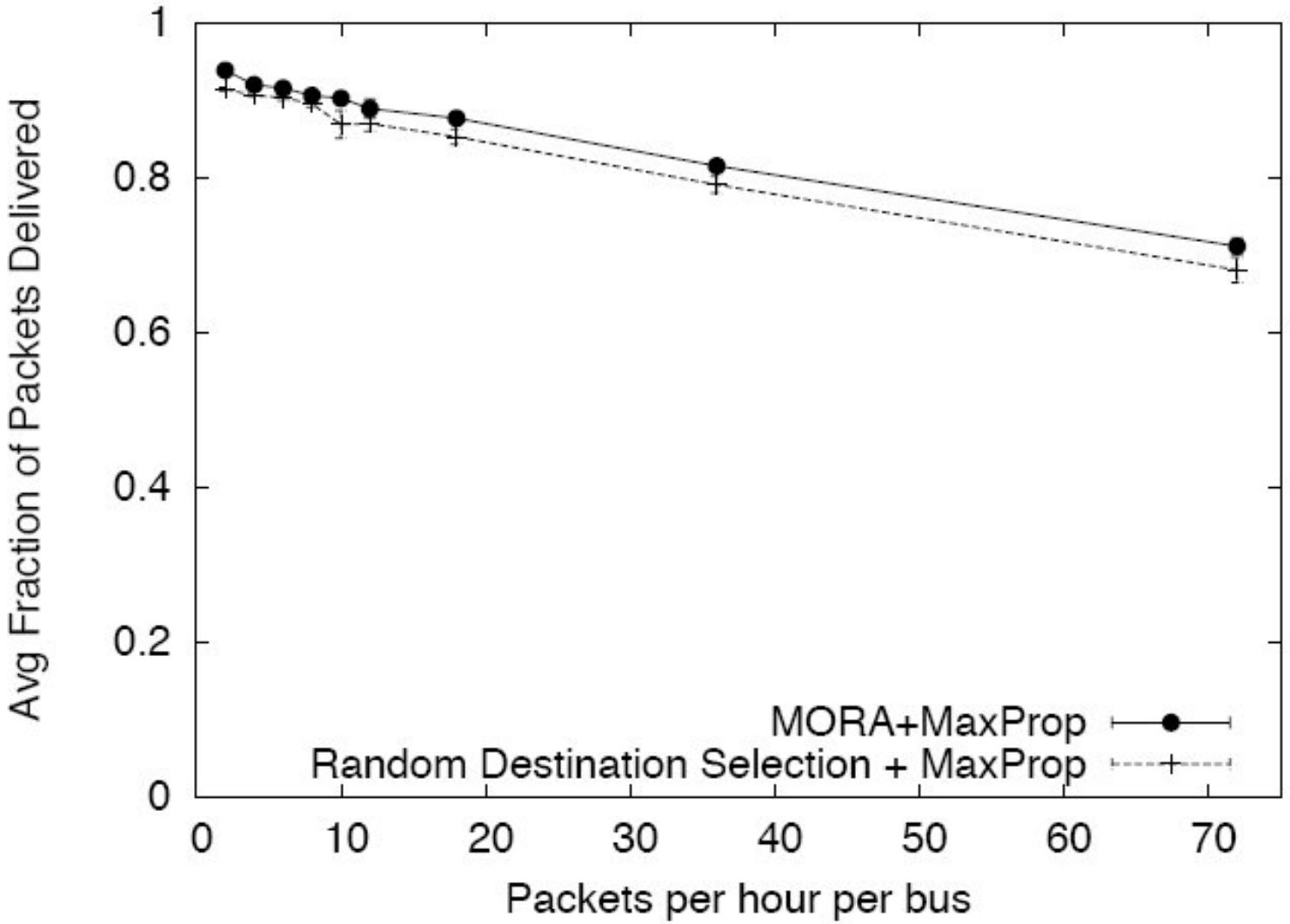
- use protocol MORA (=Multi-Objective Robotic Assistance)
- it set autonomous agents as participants into the DTN
- agents hold and try to get information about the network
- agents try to balance the network demand by movement

MORA agents

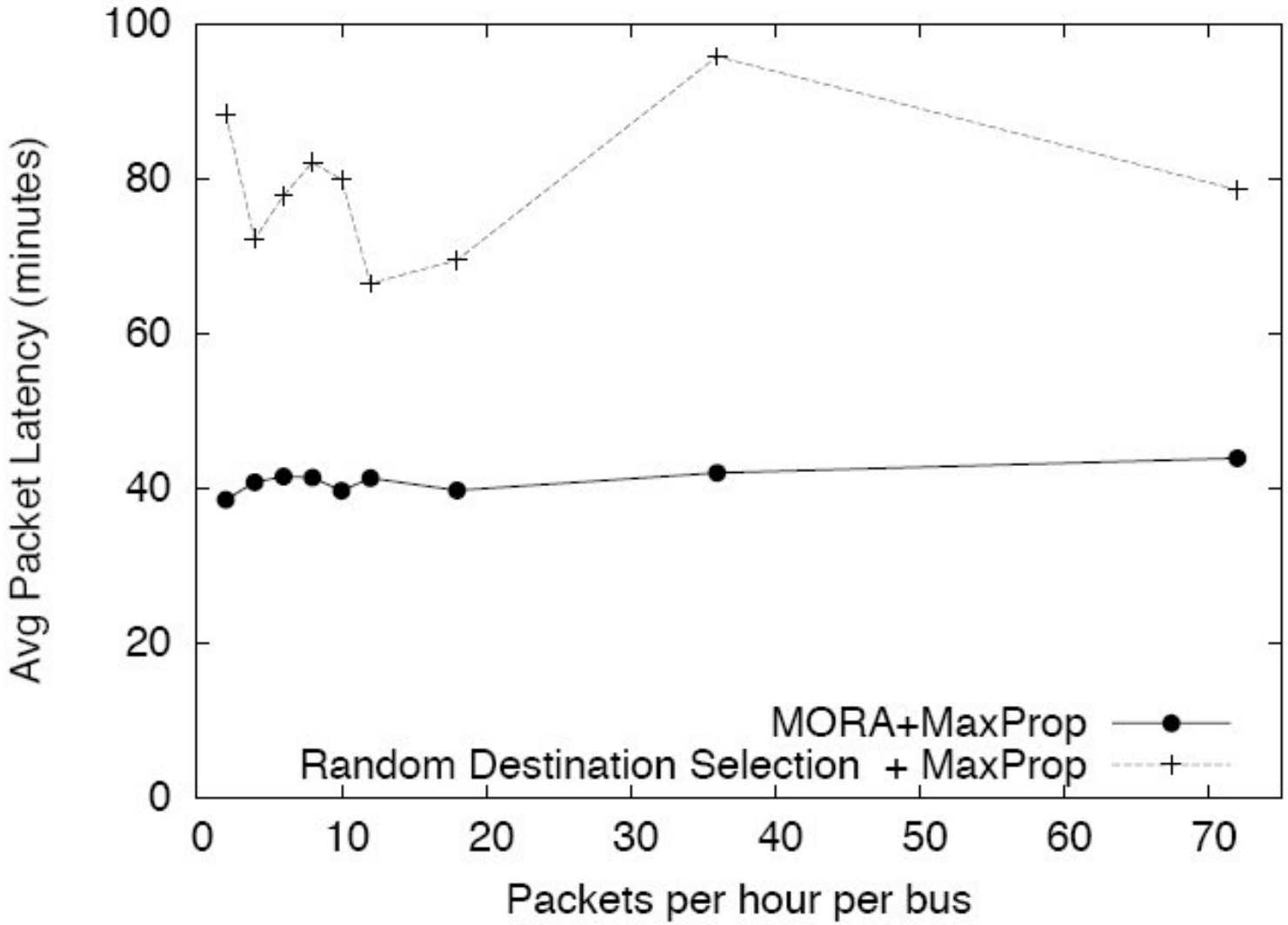
MORA agents

- to get the optimize movement is NP-hard
- multi-objective control is used to decided the motion of agents
- this control methods are presented by controllers

Statistic of Delivered Packets MORA+MaxProp



statistc of Latency MORA+MaxProp



Experimental proof

- MaxPorop perfomace: from 67% to 88%
- MaxProp delay : from 120 min to 76 min
- also it improve Random, FIFO and ME/ DLE

Conclusion

- To improve the performance of DTN use MORA
- MORA set autonomous agents in the DTN
- To get the optimize movement use control methods

The End

Thank you for your attention