

**IMPROVING THROUGHPUT AND FAIRNESS OF
CONVERGE CAST IN VEHICULAR NETWORKS**

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ABSTRACT

- Delivering data from source vehicles to infrastructures, or convergecast, is a fundamental operation in vehicular networks. However, the network capacity of vehicular network is always limited because of scarce inter-vehicle contacts. Thus, throughput maximization of convergecast in vehicular networks is of great importance.
- The unique characteristics of vehicular networks, however, present great challenges including frequent connection unavailability and opportunistic contacts. We propose an approach called ConvergeCode for improving the convergecast throughput in vehicular networks, which employs random linear coding for packet delivery. A vehicle randomly combines all received coded data and forwards it to any contacted vehicles.

CONT...

Through extensive empirical study based on the two large datasets of real GPS traces, we make the key observation that significant throughput gain can be achieved by using network coding but a serious fairness issue arises. In this paper, we study the problem of maximizing the throughput of convergecast in vehicular networks at the same time enhancing the fairness among different source nodes.

We first formulate the problem of allocating inter-vehicle contacts as lexicographical max-min multi-source flow problem, and then develop an efficient approximation algorithm with ϵ -approximation guarantee. Simulations based on real vehicular GPS traces have been performed and results show that the throughput is improved by 74%-110% while the lexicographical max-min fairness is achieved.

EXISTING SYSTEM

- The main idea is to differentiate the quality of data collected from different sensor nodes to balance their energy consumption.
- Here, propose a scheduling algorithm for the tree topology to minimize the probability that the sum-queue of the system (i.e., the total backlog of all flows) exceeds a large threshold. However, they only consider stationary networks which are not applicable to vehicular network where the topology is highly dynamic.

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PROPOSED SYSTEM

A number of routing algorithms have been proposed to routing data packets from vehicles to the infrastructure or Access Points (APs). In, two algorithms are proposed for data delivery in vehicular networks. Their goal is to bound the delay of delivery. VADD is an algorithm using statistical vehicle trajectory data to optimize the data delivery rate and delay.

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HARDWARE REQUIREMENTS

- Processor - Pentium-IV
- Speed - 1.1 Ghz
- RAM - 256MB(min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

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SOFTWARE REQUIREMENTS

- Tool - Network Simulator-2
- Operating system - LINUX
- Front end - OTCL (Object Oriented Tool Command Language)

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