

CSE 718 – Performance Evaluation of Computer Networks Course

Marmara University, Istanbul, Turkey
November 23, 2014

Midterm 1

In the following 3 weeks, we will discuss several active queue management schemes in class including their relationship and differences from each other and their effects on performance metrics. Various queuing disciplines can be used to control the bandwidth allocation for the packets to be transmitted or be dropped. While these schemes are essential to relieve the congestion level at the router, their implementation affects end-to-end performance metrics.

In this project, you will make a research on queue management methods for a specific kind of network, namely ***Vehicular Ad Hoc Networks (VANET)***. VANET is a kind of network which the vehicles move on the urban/rural areas or highways and transmit/relay the packets to be transferred to the intended destination. In such kind of topology, connectivity may not be sustained continuously because of the sparseness of the nodes in time and/or space (e.g. after midnight in urban areas, and usually non-dense topology in rural areas and highways). In these cases, a new approach is used to transfer the packets in defiance of delay rather than dropping the packets. In this approach, which is known as ***store-carry-forward*** method, the vehicle carries the packets until it meets a vehicle to transmit the packets. This approach is also commonly used in Delay Tolerant Networks (DTN) where VANET is a type of DTN.

In this project, you will propose your own queue management approach for VANETS. After your research on queue management algorithms for VANET and DTN, by considering the pros and cons of those proposed approaches in the literature, you will design your own one.

Project deliverable is the project report in IEEE paper format (www.ieee.org/documents/MSW_A4_format.doc). Your report will include, (1) description of the methods in the literature, resembles and the differences with other methods, and the enhanced performance metrics in each method. Please indicate the publication reference. (2) a comparison table similar to the one we made in classroom, and (3) detailed description of the proposed method (your method), **which you will consider as a best promising one!, according to the remarks you will give**. Please point out and give details on these items in your proposal:

- What is modified?
- Why?
- What are the effects?

Your proposal may be comprised of many algorithms/methods and some parameters. Please give significant reasons for each algorithm/method in your proposal. Please present a discussion on the parameters and their possible effects on the performance.

You will find some reading material on the course website as downloadable zipped file. These resources are only few studies in the literature. Please don't restrict yourself and your research only to the given materials. Please make your research broadly and deeply.

This is an individual research project for students that will take place of the midterm exam. Group study, collaboration, and cooperation are not allowed.

Project due date is December 26, 2014.

Ask any unclear matter to the lecturer. Good luck...

Please note that: All the methods we will discuss in the class were proposed before 2004. Your research should include recent studies until today.

Mujdat Soy Turk, Ph.D.
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