CS4331/5331: Wireless Networks and Mobile Computing

Fall 2021

Write a ONE-PAGE (10 font size and single space) summary using your own words:

• Homework number: 4

• Paper title: Dynamic Source Routing

• Your name: Chen Zhang

Summary

An ad hoc network is a set of mobile end users forming a local network and each device working as a host, this mechanism offers convenient communication between many mobile devices without having a centralized organizer or infrastructure. The author proposed a dynamic routing mechanism that can efficiently determine sender and receiver in an ad hoc network, also the dynamic routing mechanism has many advantages compare to conventional routing protocols. The author discussed the assumptions of the network and the mobile hosts in section 2, for example, it mentioned the experimental environment has the case that package can be delivered by in between hosts such as Figure 1 demonstrated. Also, hosts in an ad hoc network may move constantly, and finally, the author assumes that hosts can handle various receive modes. In the following sections, the author talked about basic operations in an ad hoc network, like route discovery and route maintenance, and discussed how to optimize the routing process by using the cache, piggybacking, reflecting shorter routes, and handling errors. Last but not least, in the performance section, the dynamic source routing shows that it can efficiently deliver packages in an ad hoc network without the overhead.

Major Contribution

The author proposed a dynamic routing mechanism that can efficiently deliver packages in an ad hoc network, also this protocol offers many advantages compared to conventional routing protocols. First, this dynamic routing protocol reduces the overhead by not sending periodic routing advertisement messages, this may also conserve battery consumptions. Secondly, for conventional routing protocols, usually, there are many redundant routing paths between routers. Those paths may lead to calculation overhead and complexity, and some of them may not work at all. This dynamic routing protocol does not require transmissions between hosts to work bidirectionally. The last one is for conventional routing protocols, they are not designed for dynamic pathfinding. In other words, conventional routing protocols are not working well for a mobile ad hoc network. On the other hand, the dynamic routing protocol that the author proposed can quickly adapt to the changing of the path as the hosts are moving in the ad hoc network.

Weak Aspects

The weak aspect of this paper is the dynamic source routing mechanism is a very basic mobile networking protocol that is mainly tested in an ideal environment. The author did not mention any security issues related to this protocol, and design. In reality, the security problem could be a crucial part and any modification related to the security issue could lead to performance problems.