

Siyada Aumted 2007: Ad-Hoc Routing Protocol Avoiding Route Breaks Based on DSR.
Master of Science (Computer Science), Major Field: Computer Science, Department of
Computer Science. Thesis Advisor: Mr. Chavalit Srisathapornphat, Ph.D. 92 pages.

Wireless communication network systems can be classified into two main categories: infrastructure networks and ad hoc networks. In ad hoc networks, mobile units also serve as base stations. This ad hoc networks require no base stations but there is a limitation in supervising and communicating among mobile units in the network. Since mobile units may always move, thus routing necessary for connecting these mobile units.

Routing protocols in ad hoc networks can be classified into two types: Proactive protocols in which each mobile unit proactively search for routes between all pairs of nodes and Reactive protocols in which each mobile unit reactively search for route when needed. Proactive protocols normally show less packet loss than reactive ones. This is because proactive protocols will always have route to destination and broken routes will be repaired proactively. However, in reactive protocols, normally do not have route available, and outgoing packets will have to wait until a route is discovered.

In this research, we propose a novel method called DSR-BA, which reduces the number of data packet losses of DSR which is a reactive routing protocol. DSR-BA detects a danger route and seeks for a new route to forward data packets before the original route breaks. By using GloMoSim as our simulation tool, we compare the efficiency of the DSR and DSR-BA. The results indicate that DSR-BA can reduce the number of data packet losses in some cases, which include: (1) when node maximum speed is 20 m/s with the number of sources equal to 10, 20 and 30 nodes (2) when node maximum speed is 0-5 m/s and 15-20 m/s with the number of sources equal to 20 and 30 nodes. However, DSR-BA do not show any improvement in the case when node maximum speed is 5-15 m/s with the number of sources equal to 10, 20 and 30 nodes. Therefore, DSR-BA outperforms DSR when the network has moderate mobility with high data traffic rate.



Student's signature



Thesis Advisor's signature