A review of cluster-based congestion control protocols in wireless mesh networks

Abstract:

Packet loss in Wireless Mesh Networks (WMNs) is due to congestion and probably due to high bit error rate caused by interference, link and node failures. Presently, congestion control and routing protocols in WMNs are not seen to have tamed this recurrent problem of congestion being experience most times in the wireless network. Routing techniques may lead to a co ngestive scenario and the congestion control should detect and probably avoid such situations. The way in which the congestion is handled may results in longer delay and more packet loss and a very significant overhead may also be incurred. Hence, this study takes a closer look at existing solutions with the application of clustering techniques to solve routing and congestion control problems because it offers scalability and reduced overheads. The study further exposes the weakness and added advantages of some of these cluster based solutions which can assist researchers to come up with broader approach to tackle the inherent problems of congestions and load balancing in an ad hoc network like WMNs. The paper conclude with a planned future research to device an appropriate level of tradeoff between computational overheads of cluster-based routing and high network throughput, low latency and delay while solving congestion problems.