Abstract

In N–sinks and N-sources network, if the number of the received packets from the source is less than the number of the required packets to solve the linear independence relationship in the sink side, then the sink node will not be able to retrieve the event correctly. Therefore, in this paper, a new approach was designed to enhance the total number of meaningful packets (the true packets that describe the event without redundancy and malicious packets), throughput and availability in the network. The new approach was designed to enhance weighted and un-weighted network, taking into consideration two network types: wired and wireless networks. In the wireless networks, a simple approach was suggested to convert the wireless network to a graph problem. On another hand, a new reconstruction algorithm for the network topology was suggested by using extra information in the incoming packets. However, after analyzing the proposed algorithms and models, the proposed system achieved lower overhead, higher availability, lower traffic, and maximum lifetime.
The Network Coding based on Marked Packets


Index Terms

Computer Science

Communications

Keywords

Network coding; linear independence; network reconstruction; backup model.