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IMPROVING NETWORK LIFE TIME OF MANET THROUGH LZW COMPRESSION TECHNIQUE

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Abstract— Cooperative communication techniques have earlier been applied to design of the IEEE 802.11 medium access control (MAC) and shown to perform better. High rate stations can help relay packets from low-rate stations resulting in better throughput for the entire network. In order to improve the network performance of Mobile Ad Hoc Networks (MANETs), novel cross-layer Distributed Energy-adaptive Location-based CMAC protocol, namely DEL-CMAC, for Mobile Ad-hoc networks (MANETs). The design objective of EC-MAC is to improve the performance of the MANETs in terms of network lifetime and energy efficiency. This can be achieved through LZW compression technique. A distributed utility-based best relay selection strategy is incorporated, which selects the best relay based on location information and residual energy. It adopted the best partnership selection algorithm to select the cooperative node with better channel condition, higher transmission rate and more balanced energy consumption. CC can provide gains in terms of the required transmitting power due to the spatial diversity achieved via user cooperation

***Index Terms*— Network lifetime, cooperative communication, medium access control protocol, relay selection.**

I.Introduction

A Mobile Adhoc Nework (MANET) is a self configured network of mobile terminals connected by wireless links. Mobile terminals such as cell phones, portable gaming devices, PDAs (Personal Digital Assistants) and tablets all have wireless networking capabilities. By participating in MANETs, these terminals may reach the Internet when they are not in the range of WiFi access points or cellular base stations, or communicate with each other when no networking infrastructure is available. MANETs can also be utilized in the disaster rescue and recovery described in one primary issue with continuous participation in MANETs is the network lifetime, because the aforementioned wireless terminals are battery powered, and energy is a scarce resource. The extra processing and receiving energy consumption required for cooperation, CC is not always energy efficient compared to

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direct transmission. There is a tradeoff between the gains in transmitting power and the losses in extra energy consumption overhead.Cooperative MAC (CMAC) protocol to exploit the multirate capability and aimed at mitigating the throughput bottleneck caused by the low data rate nodes, so that the throughput can be increased.DELCMAC that focuses on the network lifetime extension, which is a less explored aspects in the related work. By considering the overheads and interference due to cooperation, as well as the energy consumption on both transceiver circuitry and transmit amplifier, DELCMAC can significantly prolong the network lifetime. A distributed energyaware locationbased best relay selection strategy is incorporated, which is more reasonable for MANETs comparing with the existing schemes based on channel condition.

II. EXISTING SYSTEM

The CMAC protocols mainly focus on the throughput enhancement while failing to investigate the energy efficiency or network lifetime. While the works on energy efficiency and network lifetime generally fixate on physical layer or network layer. Our work focuses on the MAC layer, and is distinguished from previous protocols by considering a practical energy model energy consumption on both transceiver circuitry and transmit with the goal to enhance energy efficiency and extend network lifetime. The tradeoff between the gains promised by cooperation and extra overhead is taken into consideration in the proposed protocol. In addition, in the previous works, very little attention has been paid to the impact brought by varying transmitting power in CC on the interference ranges, since constant transmitting power is generally used. The interference ranges alteration in both space and time will significantly affect the overall network performance. Issue of effective coordination over multiple concurrent cooperative connections with dynamical transmitting power in this project.

Disadvantages of Existing System

- The existing DELCMAC protocol implementation doesn't states.
- Improving the energy level of the mobile nodes.
- The PDR ratio and throughput rate is affected by the working process of DELCMAC protocol.
- The energy conservation achieved through sending the packets set by set that considerably leads to delay in delivering complete data.

III.PROPOSED SYSTEM

LZW data compression technique is used along with the EC MAC protocol, which is the extension of DELCMAC protocol. Source node compress the sending data using LZW compression technique, which results in fastest delivery of high bits of data in short span of time that seems to increase the node energy level. Besides three control frames (RTS, CTS and ACK) supported in IEEE 802.11MAC, The probabilities of successful cooperative communications and direct transmission are derived.Further, analytical and simulation results shed some light on the tradeoff between physicallayer multiuser diversity gain and MAClayer contention overhead. For the future work, to exploit beneficial cooperation in multihop wireless network, we will integrate the function of load balance into our crosslayer protocol

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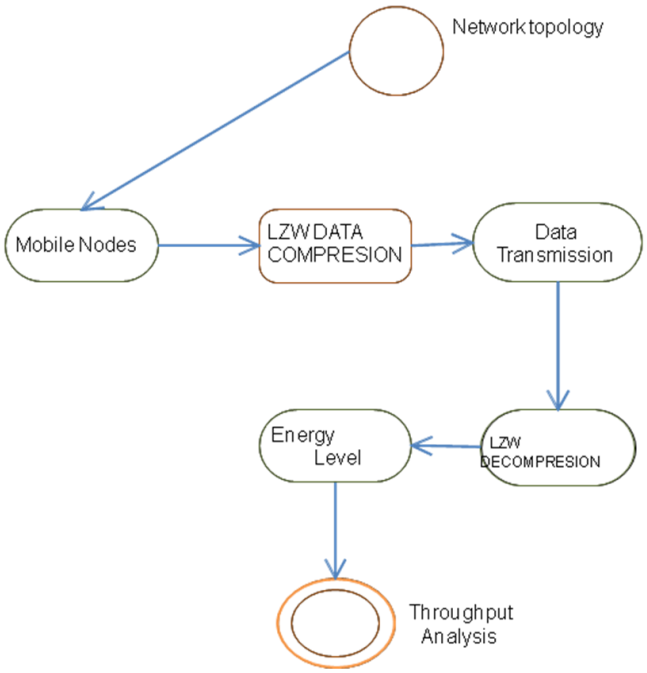
design. Further, more cooperation techniques including coded cooperation will be exploited and evaluated.

The resource allocation is obtained by maximizing over the rates obtained for each possible subset of active relays, and the unique time allocation for each set can be obtained by solving a linear system Three new frames are introduced in ECMAC. They are Cooperative RequesttoSend (CRTS) frame, HelpertoSend (HTS) frame, and Cooperative CleartoSend (CCTS) frame. After the completion of data transmission process, each node calculates its remaining energy level and energy consumption, by analyzing those energy levels; we can evaluate the performance of the network life time.

SYSTEM ARCHITECTURE



MODULES DESCRIPTION

Nodes Creating

The node creation and more than 50 nodes placed particular distance. Wireless node placed intermediate area. Each node knows its location relative to the sink. Effective relay selection strategy to choose the best relay terminal and a crosslayer optimal power allocation scheme to set the transmitting power. The access point has to receive transmit packets then send acknowledge to transmitter.

Del Cmac Protocol

The Del cmac protocol concentrates on improving the network life time through the energy cost of the node. The Del cmac protocol route the data in lesser energy cost. The data transmission process is performed set by set. The existing protocol select path which has the less energy cost, data that has been send quickly and easily. DELCMAC can significantly prolong the network lifetime comparing with the IEEE 802.11 DCF and CMAC

EcMac Lzw Compression Technique

Data compression technique using ECMAC protocol, by data compression technique Source node compress the sending data using LZW compression technique for example

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100 mb data is compressed to 70mb, which results in fastest delivery of high bits of data in short span of time that seems to increase the node energy level. By using compression technique packets loss is reduced. data has been reduced and send to the user Several recent works have suggested that, in such a scenario, selection, i.e., a single relay helping the source, is the best relaying option in terms of the resulting complexity and overhead.

EcMac Lzw Decompression Technique

The compressed data is delivered to destination with the short span of time. The destination uses an EC MAC LZW decompression technique to decompress the received original data. For example 70 mb is decompressed to 100mb. As a result the destination gets the original data without any loss in the fastest and safest delivery. So the nodes use lesser energy level to transmit the data and gains more energy.

Energy Level Examination

By using LZW compression and decompression technique the nodes in the network gains more energy, by calculating the energy level of each nodes we can examine the improved network life time.

Performance Examination

The performance analysis of the existing and proposed work is examined through graphical and AWK report analysis. The throughput analysis states the network performance of our proposed protocol.

CONCLUSION

Distributed technique to improve the network life time and also our results shows the improved network performance in throughput ratio. Also Minimize the packet loss and delay. By using the data compression technique nodes use only less energy value to transmit the data, so that nodes energy level can be saved and raised.The data packets are delivered in a short span of time.

The demonstrated DELCMAC can significantly prolong the network lifetime comparing with the IEEE 802.11 DCF and CoopMAC, at relatively low throughput and delay degradation cost. As a future work, we will investigate our DELCMAC for larger scale network size and with high mobility. Also consider to develop an effective cross layer cooperative diversity aware routing algorithm together with our DELCMAC to conserve energy while minimizing the throughput and delay degradation.

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