International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

The Distributed Multi Constrained Channel Access Mechanism by Using Framework for Mobile Adhoc Network

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Abstract

The Mobile Ad hoc Network (MANET) is an autonomous wireless communication system, and does not have any fixed infrastructure. The Network loads which arise due to application evolving using MANET environment has to balance using routing protocol. Networks are increasingly resource intensive to efficiently manage the bandwidth & Energy in the group communication on basis of addressing the routing issues to provide the enhanced functionality of the network on basis of channel utilization and channel conditioning against load balancing.

In this research, proposed a novel unified framework for Distributed multi constrained Channel Access Mechanism for mobile Adhoc Network on inclusion of Scheduled Throughput Discriminant Multi-Data synchronization Strategies for Channel Allocation in Mobile Adhoc Network on various traffic patterns, Multi Trajectory Particle Swarm Optimization towards Optimal Velocity Control against load balancing and band width controlling and finally Self Adaptive Redundancy Elimination Clustering and Distributed Load Bandwidth Management Constraints for Mobile Ad Hoc Network.

Keywords: Network loads, bandwidth & Energy, infrastructureless.

Introduction

Mobile Ad Hoc Networks (MANETs) are infrastructureless, self-configuring wireless networks which enable peer-to-peer communication between mobile nodes without centralized control. It considers the mobility of the nodes in the ad hoc setup. Nodes are able to communicate beyond their transmission range via multi-hop communication. Due to the intrinsic limitation of transmission range, each wireless node is responsible for dynamically discovering and associating with other nodes with a view to establish a communication.

MANET Node operates in distributed manner on time varying wireless communication on available bandwidth. A node acts as router to forward packets between each other. In Some cases, node mobility may cause route changes. Each device in a MANET is free to move independently in any direction, and will therefore change its links to other devices frequently. In ad hoc environment, as the mobile hosts have limited transmission range, it may be necessary for one mobile host to enlist the aid of other hosts in forwarding a packet to its destination. Each must forward traffic unrelated to its own use, and therefore be a router.

Routing Principles of MANET

Due to the dynamic nature and a lack of centralised infrastructure, MANET's face several challenges such as node mobility, error-prone shared wireless channel, energy and bandwidth constraints, self-organization and synchronization. These complications generate hindrances in facilitating MANET to communicate through a stable and scalable topology. The basic concept of routing is to solve the above mentioned complication. The flow of data transmission between two wireless devices with reference to the Open System Interconnection (OSI) model.

The network layer accomplishes the end-to-end data communication between source and destination nodes through four basic processes namely: addressing, encapsulation, routing and decapsulation. Initially, the network layer provides addresses to the source and destination nodes using either IPv4 or IPv6 addressing schemes. During transmission, data travels from top to bottom in the OSI model pertaining to the source node. In the data encapsulation process, the Transport Control Protocol (TCP), the Internet Protocol (IP) and data link headers are appended to the data at the transport,

Scheduled Throughput Discriminant Multi-Data synchronization Strategies for Channel Allocation in Mobile Adhoc Network

The methodology employing the multi data synchronization strategies for efficient use of the channel network to balance the dynamic load to obtain the high throughput. It is to exploit node information on each channel on various hops in order to efficiently manage the network to prolong the network life time in Mobile Adhoc Network by establishing the interchangeable channel filter and time window mechanism to manage the congestion of the network. The distance of the node and separating data packets to channel is enabled in parallel. The model fixes the problem of congestion and data network overhead due to energy loss and attack propagation in the network.

Multi Trajectory Particle Swarm Optimization towards Optimal Velocity Control against load balancing and band width controlling

The methodology employed in multi trajectory particle swarm optimization to generate cluster for load balancing of the Node on packet classification using multipath routing topology for mobile Adhoc Network. The work implements solution to explore node information on basis of density, energy information, packet information, packet priority despite node attack identification and prevention on optimal velocity control strategies. The multipath routing will generate much effort on the routing protocol on basis of trajectory formation for channel utilization for data transmission.

Self Adaptive Redundancy Elimination Clustering and Distributed Load Bandwidth Management Constraints for Mobile Ad Hoc Network

The strategies to eliminate the race conditions and node reservation problems. In this model, a high throughput data transmission has been achieved on constructing the self adaptive redundancy elimination clustering protocol. Further it enhances the QOS condition of the channel on exploiting fault handling procedures in the Mobile Adhoc Network by Bandwidth segment resizing, routing and utilizing mobility models. The proposed model reduces the congestion in terms of data traffic reduction and increases energy conservation on employment of the bandwidth rearranging based on the direction of the node mobility. It extracts the information from the routing table. It contains the trace or monitored information of the node.

Results and Discussion

In this chapter, the results of the proposed model are analysed on several aspects based on the output of the state of art approaches on the NS2 Simulator. System derives the network metrics to evaluate the strength of the proposed solutions using Network Throughput, Packet delivery ratio, Network overhead against various data size and network area.

Conclusion

The conclusion of the work has shows the hard steps taken to model a new solution, to identify the efficient solution for channel utilization and conditioning in terms of Load balancing, Packet analysis and mobility model with several highlights in the work. In Addition, solutions have been experimented with accurate results and journal publication is also discussed.

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