

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor & UGC Approved Journal)

Website: www.ijirset.com

Vol. 6, Issue 8, August 2017

A Review on Spatial Reusability-Aware Routing In Multi-Hop Wireless Networks

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ABSTRACT: The problem of routing in multi-hop wireless networks, to achieve high end-to-end throughput, it is difficult to find the optimal path from the source node to the destination node. Although a large number of routing protocols have been implemented to find the path with minimum transmission time for sending a single packet, such transmission time reduces protocols cannot be guaranteed to achieve high end-to-end throughput. Spatial reusability aware routing in multi hop wireless network is featured by considering spatial reusability of the wireless communication media. Spatial reusability-aware single-path routes and anypath routing protocols, and compare them with existing single-path routing and anypath routing protocols, respectively. Our evaluation results show that our protocols significantly improve the end-to-end throughput compared with existing protocols.

KEYWORDS: Routing, wireless network, Hop to Hop to communication

I. INTRODUCTION

Large number of works wireless routing matrices is done in traditional wireless sensor network. In wireless communication network it is important to carefully find the high utility route in multi-hop wireless networks, a large number of routing protocols have been proposed for multi hop wireless networks. However, a fundamental problem with existing wireless routing protocols is that minimizing the overall number of transmissions to deliver a single packet from a source node to a destination node does not necessarily maximize the end-to-end throughput. We investigate two kinds of routing protocols, including single-path routing and anypath routing. The task of a single-path routing protocol is to select a cost minimizing path, along which the packets are delivered from the source node to the destination node. In spatial reusability of wireless signals fade during propagation, two links are free of interference if they are far away enough, and thus can transmit at the same time on the same channel. To the best of our knowledge, most of the existing routing protocols do not take spatial reusability of the wireless communication. We consider spatial reusability of wireless sensor network routing using spatial reusability of by single path routing and any path routing media into account. Routing protocols are generally implemented based on transmission cost minimizing routing metrics, they cannot guarantee maximum end-to-end throughput when spatial reusability need to be considered. They need centralized control to realize MAC-layer scheduling, and to eliminate transmission contention. The algorithms proposed in this work do not require any scheduling, and the SASR algorithms can be implemented in a distributed manner. Our approach can be extended to adapt to multiple transmission rates, as long as the conflict graph of links can be calculated. Proposed system motivate to simply select the (any) path that minimizes the overall transmission counts or transmission time for delivering a packet.

II. RELATED WORK

We present a link layer protocol called the Multi-radio Unification Protocol or MUP. On a single node, MUP coordinates the operation of multiple wireless network cards tuned to non-overlapping frequency channels. The goal of MUP is to optimize local spectrum usage via intelligent channel selection in a multihop wireless network. MUP works

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with standard-compliant IEEE 802.11 hardware, does not require changes to applications or higher-level protocols, and can be deployed incrementally. The primary usage scenario for MUP is a multihop community wireless mesh network, where cost of the radios and battery consumption are not limiting factors. We describe the design and implementation of MUP, and analyze its performance using both simulations and measurements based on our implementation. Our results show that under dynamic traffic patterns with realistic topologies, MUP significantly improves both TCP throughput and user perceived latency for realistic workloads [1].

From this paper we refer an innovative design for the operation of such ad-hoc networks. The basic idea of the design is to operate each Mobile Host as a specialized router, which periodically advertises its view of the interconnection topology with other Mobile Hosts within the network. This amounts to a new sort of routing protocol. We describe the ways in which the basic network-layer routing can be modified to provide MAC-layer support for ad-hoc networks [2].

An ad hoc network is a collection of wireless mobile nodes dynamically forming a temporary network without the use of any existing network infrastructure or centralized administration so from his paper we refer the results of a detailed packet-level simulation comparing four multi-hop wireless ad hoc network routing protocols that cover a range of design choices: DSDV, TORA, DSR, and AODV. We have extended network simulator to accurately model the MAC and physical-layer behavior of the IEEE 802.11 wireless LAN standard, including a realistic wireless transmission channel model, and present the results of simulations of networks of 50 mobile nodes [3].

Opportunistic routing is a recent technique that achieves high throughput in the face of lossy wireless links. The current opportunistic routing protocol, ExOR, ties the MAC with routing, imposing a strict schedule on routers' access to the medium. Although the scheduler delivers opportunistic gains, it misses some of the inherent features of the 802.11 MAC. For example, it prevents spatial reuse and thus may underutilize the wireless medium. It also eliminates the layering abstraction, making the protocol less amenable to extensions to alternate traffic types such as multicast [4].

We refer a new protocol for routing in multi-radio, multi-hop wireless networks. Our protocol, Multi-Radio Link-Quality Source Routing, is designed for wireless networks with stationary nodes, where each node is equipped with multiple independent radios [5].

III. EXISTING SYSTEM APPROACH

In An ad hoc network wireless sensor nodes dynamically forming a network without the use of any existing network infrastructure administration. Which limit transmission range of wireless network devices, multiple networks "hops" may be needed for one node to exchange data with another across the network. So existing work proposed, a variety of new routing protocols targeted specifically at this environment have been developed, but little performance information on each protocol and no realistic performance comparison between them is available.

Disadvantage of Existing system:-

1. Energy consumption was bigger challenge to wireless sensor network.
2. In multi hop communication secure data transmission with less cost is ignored.
3. Existing infrastructure is expensive or inconvenient to use, wireless mobile users may still be able to communicate through the formation of an *ad hoc network*.

IV. PROPOSED SYSTEM APPROACH

In spatial reusability aware routing scheme novel approach is defined with the spectrum spatial reusability in any path routing, and propose SAAR algorithm for participating node selection, cost calculation, and forwarding list determination. We have designed SASR algorithms and SAAR algorithm with different data rates in network simulator. The evaluation results show that our algorithms work improvement to end-to-end throughput compared with existing ones.

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Advantage of Proposed System:-

1. Reduced energy consumption in WSN.
2. Secure node to node communication.
3. Reduce packet drop attack with trust based active source routing.

V. EXISTING SYSTEM ARCHITECTURE

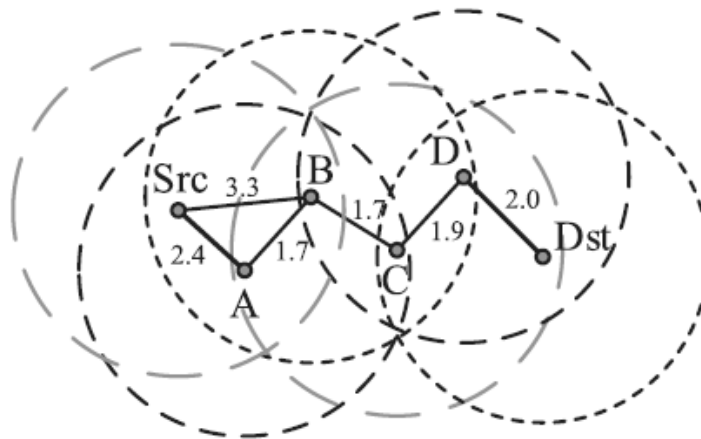
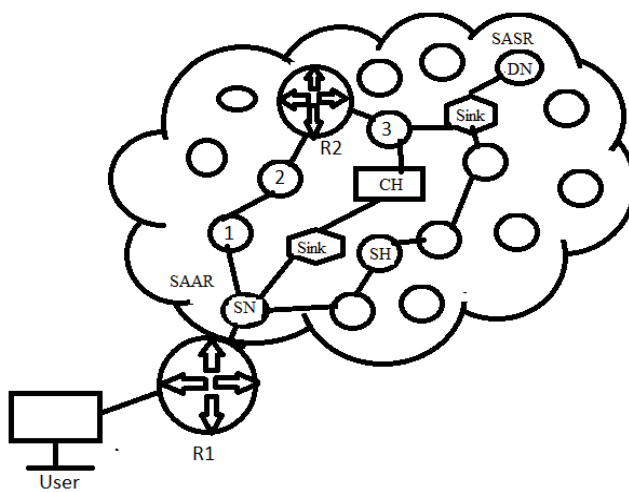


Fig No 01 Existing System architecture

VI. PROPOSED SYSTEM ARCHITECTURE



Routing table of Router R2

Destination Network	Next Hop
DN	3
1	2
SN	1

SN Source Node
DN Destination Node
CH Cluster Head
SH Shared Node
Sink Node

Fig No 02 Proposed System Architecture

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VII. CONTRIBUTION OR FUTURE SCOPE

We are the first to explicitly consider spatial reusability of the wireless communication media in routing, and design practical spatial reusability-aware single-path routing and any path routing protocols. We define the problem of spatial reusability aware single-path routing, and propose two complementary categories of algorithms for path selection. While one category leads to implement the best solution paths, the other way evaluates the performance of the paths in the critical case. Active source routing protocol is used for efficient energy management with multipath routing. Network node authentication for intrusion detection in wireless network communication. Proposed system design opportunities routing to improve the performance of our routing algorithms by analyzing special attacking cases identified in the routing. Another direction is to implement inter-flow spatial reusability, and to optimize system network performance.

VIII. CONCLUSION

Spatial reusability aware routing can efficiently improve the source to destination communication with high end throughput in multi-hop wireless networks, by carefully considering spatial reusability of the wireless communication media. This is done by the protocols, SASR and SAAR, for spatialreusability-aware single-path routing and anypath routing, respectively. To contribute more for better energy efficiency system implement opportunistic routing to reduce energy consumption.

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