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Spatial Aware Routing Protocol Used in Multi-Hop Networks

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Abstract: To attain high end-to-end throughput, it is essential to find the "best" path from the source node to the destination node. Although a large number of routing protocols have been proposed to find the path with minimum total transmission count/time for delivering a single packet, minimizing transmission count/time related protocols have no guaranteed to achieve maximum throughput. But by carefully working on spatial reusability in wireless communication, we can vigorously improve the end-to-end throughput in multi-hop wireless networks. By single-path routing (SASR) and by any path routing (SAAR) protocols. The experimental results gives the proposed protocols improve from the end-to-end throughput.

Keywords: Routing, SASR, SAAR Protocol.

1. INTRODUCTION

In wireless multi-hop networks, nodes communicate with each other using wireless channels and do not have the need for common infrastructure or centralized control. Multi-hop wireless network. Extend coverage with lower transmission power Provide non-line-of-sight (NLOS) connectivity. This enables nodes that cannot hear each other directly to communicate over intermediate relays without increasing transmission power. Such multi-hop relaying is a very promising solution for increasing throughput Most traffic is user-to-gateway or gateway-to-user. In ad hoc networks, most traffic is user-to-user When several nodes in intermediate gets used, the sender reduce transmission power thus limiting interference effects and enabling spatial reuse of frequency bands. In ad-hoc networks, Self-healing, resilient, extensible. Easy to provide coverage in outdoors and hard-to-wire areas.

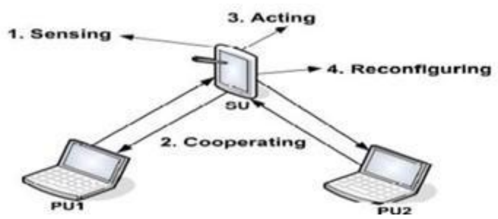

Figure 1.1 Ad-hoc network scenario

Wireless ad-hoc networks can be further classified by their applications:

Mobile ad hoc networks (MANETs)

Infrastructure-based systems that use as cellular or WiFi technology, coupled with time varying connectivity profile without adversely affecting the user's QoS is the formidable challenge faced by developers of Wireless Mesh Networking (also called MANET, or Mobile Ad hoc Networking) systems.

Vehicular ad hoc networks (VANETs)

VANET refers to a network created in an ad-hoc manner where different moving vehicles and other connecting devices come in contact over a wireless medium and exchange useful information to one another. Cluster to Cluster Communication: In VANETs network is split into clusters that are self managed group of vehicles. Vehicle to Vehicle Communication: It refers to inter vehicle communication. Vehicles or a group of vehicles connect with one another and communicate like point to point architecture. It proves to be very helpful for cooperative driving.

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Wireless sensor networks

Sensors are useful devices that collect information related to a specific parameter, in such a sensor network, traffic patterns are many-to-one, where the traffic can range from raw sensor data to a high level description of what is occurring in the environment, if data processing is done locally.

At the same time, the network is expected to provide this quality of service for a long time (months or even years) using the limited resources of the network (e.g., sensor energy and channel bandwidth) while requiring little to no outside intervention.

Advantages:

- Lifetime constraints imposed by the limited energy supplies of the nodes in the network.
- Unreliable communication due to the wireless medium.
- Need for self-configuration, requiring little or no human intervention.

2. RELATED WORK

Adyta1 presents 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 by placing multiphop via intelligent channel selection in a analyze its performance using both simulations multi hop wireless network. It describes the design and implementation of MUP, and and measurements based on implementation. MUP significantly improves both TCP throughput and user perceived latency for realistic workloads. They plan to investigate other metrics for channel quality, a more scalable method for sending probes using broadcasts, and the impact of mobile nodes on MUP.

D. Aguayo3 When the packets are sent through each hops it is compared, in which DSR clearly has the lowest overhead. AODV-LL works on route discover table DSR's, which in turn creates hop-by-hop which eliminates. They have extended network simulator to accurately model the MAC and physical-layer behavior of the IEEE 802.11 wireless LAN standard, with a wireless transmission channel model implemented, and shown the results of simulations of networks using 50 mobile nodes. Opportunistic routing and network coding are two powerful ideas which may at first sight appear unrelated.

D. B. Johnson5 uses dynamic source routing for experimental. This protocol uses dynamic source routing which adapts quick routing changes when host movement is frequent, such as in the IEEE 802 SRT bridge standard, during periods in which hosts move less frequently. Dynamic source routing protocol is similar in approach yet requires little or no overhead to some source routing protocols in FLIP and in SDRP. This paper does not address the security concerns inherent in wireless networks or packet routing. used in wired networks.

3. PROBLEM STATEMENT EXISTING SYSTEM

In the existing system whatever routing protocols are single or multiple path routing protocol it depends on link-quality with metrics such as link transmission count-based and time-based metrics are into use. They simply select the (any) path that minimizes the overall transmission counts or transmission time for delivering a packet.

- Zhang et al. solved the problem with a column generation method by formulating joint routing and scheduling into an optimization problem.
- Jones et al. implemented k-tuple coding which proved throughput optimality.

Disadvantages of Existing System:

- A fundamental problem in the existing model protocols which minimizes the final product (or future) of gearboxes to launch a sole wrapper starting with an authority automatically overestimate the end- to-end throughput.
- Recent routing protocols don't like dimensional reusability of your mobile verbal exchange publishing with in account.
- To get rid of automatic transmission contention, regulate to attain MAC- layer scheduling.

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4. PROPOSED SYSTEM

- In this paper, investigating two kinds of routing protocols, including single-path routing and any path routing. Single path is selecting cost effective path protocol with the packets from source node to destination.
- In prior spatial reusability of the wireless communication media tremendously improve the end-to-end throughput although in Multihop wireless networks.
- The SASR algorithms do not require scheduling and implemented in a distributed manner.

5. IMPLEMENTATION

Static network which is wireless is taken into . For understanding in a better way, we assume that the nodes use the same transmission rate, and do not employ any power control scheme in this work. Signal fades while transmission in wireless network sorks parallel and they are spatially far away enough from one another. Non-interfering set (hyper-links) are out of the interference , i.e.,the (hyper-)links in the same non-interfering same time.

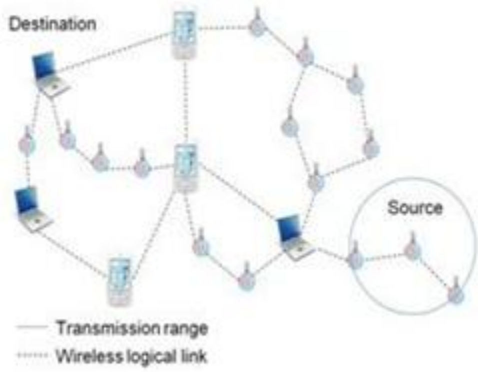
Cost Minimizing:

In this module is used to users for minimizing the cost of file transferring process from sender to recover. We demonstrate the suitability of this approach for improving the global efficiency and attack resilience of a variety of synthetic and real-world networks, including Internet backbone networks and metro systems.

SASR algorithm works on path cost of it. Which selects the smallest cost path? In a spatial reusability-aware path cost evaluation for single-path routing a given each of the paths found.

In the existing model, source routing protocol (e.g., DSR), our SASR algorithm calculates the spatial reusability aware path cost of it. Then, the path with the smallest cost can be selected. In a Spatial Reusability-Aware Anypath Routing we present the spatial reusability- aware anypath routing protocol algoritm. By finding the end-to-end cost minimizing path considering the spatial reusability is NP-hard, this algorithm is designed to work on a suboptimal route, which can achieve superior performance to existing any path routing protocols.

6. ARCHITECURE



7. RESULTS

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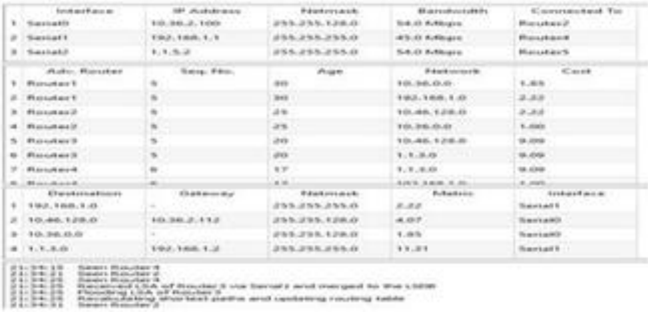
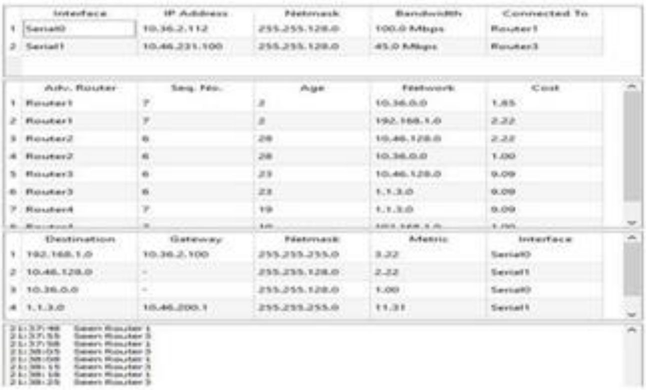
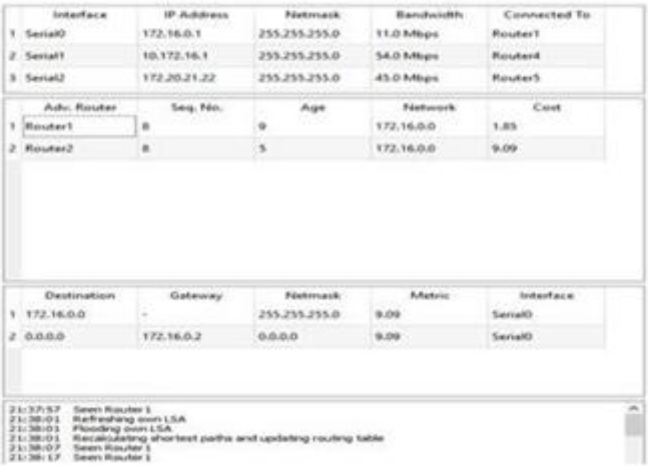


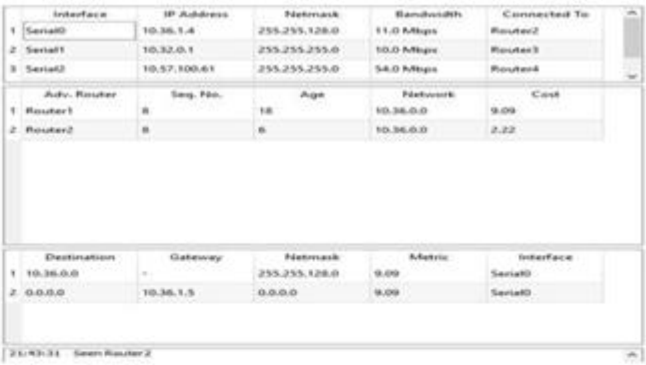
ROUTER 1



ROUTER 2



HOP1



LINK1 GRAPHS:

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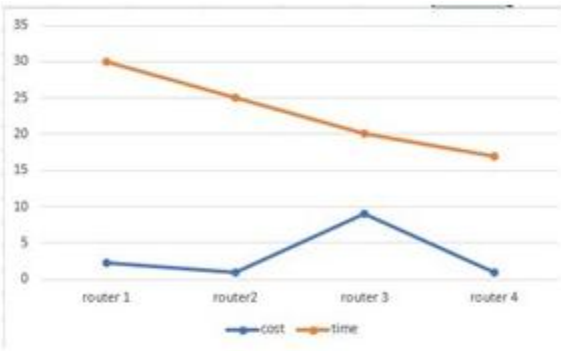
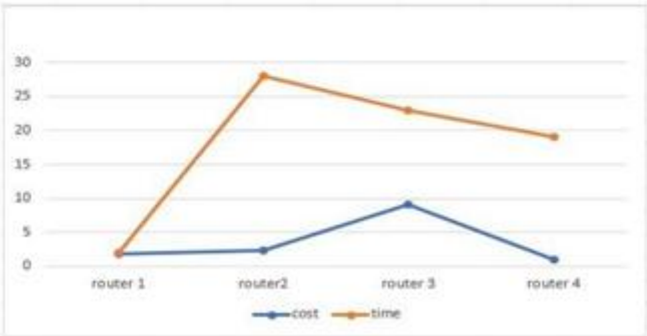


ROUTER1



ROUTER 2

8. CONCLUSION

Our proposed model gives a clear demonstration and viewable improvement in throughput of multihop end-to-end network path. This is achieved by carefully working on the spatial reusability wireless communication media. We presented two level of protocols which is implemented in the experiment of the model single path routing SASR and SAAR and also works with anypath routing, respectively.

Spatial reusability aware routing can efficiently improve the source to destination communication the supply to goal correspondence with top of the line throughput in multi-jump. We have furthermore specified conventions, secure node to node communication and reduce the packet drop.

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