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LINEAR DISCRIMINANT PACKET FLOW ANALYSIS TO ASSESS THE RISK OF TRAFFIC ALLOCATION PROBLEM USING A PORTFOLIO SELECTION TECHNIQUE

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ABSTRACT

Stealth Jamming (SJAM), in which malicious nodes periodically generate bogus traffic to trigger false route breakages. Multiple-path source routing protocols to allow a data source node to distribute the total traffic among the available paths. We consider the problem of jamming-aware a source routing protocol in which the root node performs the traffic allocation based on empirical jamming statistics at individual network nodes. We formulate this traffic allocation as a loss network traffic flow problem using portfolio selection from financial statistics. Linear discriminant packet flows analysis algorithm used to identify the multiple paths from source to destination. Demonstrate the network's ability to estimate the impact of jamming and incorporate these estimates into the traffic allocation problem.

I. INTRODUCTION

Wireless Mesh Networks (WMNs) consist of a high-density of hundreds to thousands of mesh routers (MRs) deployed in corporate offices and university campuses. The primary purpose of this deployment is to meet user demands for high bandwidth, mobility, and reliability. A JAMMING end-to-end transmissions in a wireless mesh network or underwater acoustic network can have debilitating effects on data transport through the system.Network movement, jamming analysis and prediction is a proactive approach to ensure secure, reliable and qualitative network communication. The model had been two-way communication scheme, in which both server and client are working as sender and receiver simultaneously. The server receives a signal verify client state and bunch of necessary information, and when it sends control commands.The Network Traffic Analysis module brings network traffic and bandwidth usage data from any flow-enabled device on the network.

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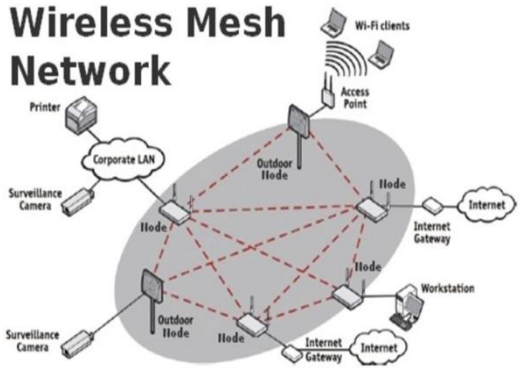

Figure 1

Wireless mesh network

The architecture is shown in Figure 1 where the dash and solid lines represent respectively wireless, and wired links depict a possibility of interconnecting many heterogeneous networks. Communications in WMNs are multi-hop and multipoint-to-multipoint, the system is self-organized, and its performances are affected by mobility even if it is less that's why implementing a Scalable MAC for WMNs is a problem. The MAC layer in two Ways can address this scalability. The first way is to increased existing MAC protocols or to propose new MAC protocols to Increase end-to-end throughput when an only a single channel is able in a network node. When many communication channels are available in the network, a second way allow the transmission on multiple channels in every network node.

The Network Traffic Analysis module secure threshold-based alerting to help you address network traffic problems before they impact your users, applications, and business. It alerts you when senders or receivers exceed bandwidth thresholds, when interface traffic exceeds utilization thresholds, and when you exceed failed connections and the number of conversation partner thresholds. Traffic monitoring and analysis are essential to more effectively troubleshoot and resolve issues when they occur, do not bring network services to a standstill for extended periods. Numerous devices are available to help administrators with the monitoring and analysis of network traffic. So how to ensure continuous network service becomes a critical problem especially in tight situations. Although some research has been conducted on countering jamming attacks, few works consider jamming dynamics. In traditional network communication is dependable on the need for the existence of wired infrastructure. WMN requirements as being truly wireless have moved from the battlefield to the service providers and residential networking environments. It allows clients nodes to connect with other networks over multi-hop wireless backbone nodes.

JAMMING-AWARE TRAFFIC ALLOCATION

For Multiple-Path Routing Using Portfolio Selection Project is to overcome the problems of the previous system. The previous system has a time-consuming process, and sometimes it can disturb the wireless networks. In the present scenario every time it can update the route path, or it can create a new route path for sending messages. The source node needs to estimate the effective peer-to-peer packet success range to define an

optimal traffic allocation. Assuming the total time required to transport packets from each source to the corresponding destination is negligible compared to the update relay period.

Traffic consolidation

As network are usually planned considering peak traffic demands, so under low traffic conditions many MR might be idle or underutilized. Traffic may be consolidated towards selected MR to let many others mesh routers to sleep. Hence by switching off the underutilized/empty router or radio in multi-radio WMN, significant energy can be saved. But redesigning of the network equipment's hardware is required to control sleeping using the software.

Energy-aware traffic handoff

Unbalanced traffic among MAP may lead to energy depletion of massive loaded MAP leading to earlier node failure and impacts QoS. This problem can be addressed using energy aware handoff management and hence helps in extending network lifetime significantly.

MULTIPATH ROUTING PROTOCOL

The multipath protocol has widely been adopted in wireless sensor networks. The protocol creates multiple braided or disjoint paths for data routing. It considers path length and node energy to choose a way. It first selects shorter tracks high in energy and then switches to longer routes that are high in energy. By alternating between paths, this protocol achieves load balancing**.** As the lifetime of a wireless sensor network is constrained by the limited energy and processing capabilities of its nodes, the protocols operating in such systems should be energy efficient to maximize the network lifetime and should also optimize the use of scarce resources, mainly energy and bandwidth. As each sensor node performs routing functionalities to assist other node communications to reach the sink, these tasks should be accomplished with as little consumption of resources as possible, since sensors are tiny mobile devices with limited computing and battery power.

METHODS AND IMPLEMENTATION

A wireless sensor network (WSN) is composed of a large number of sensors that are densely deployed for monitoring the events, such as battlefield surveillance, intrusion detection, and many other applications. We formulate this traffic allocation as a loss network flow traffic flow problem using portfolio selection scheme from financial statistics. Linear discriminant packet flows analysis algorithm used to identify the multiple paths from source to destination and send the data through multiple paths. So how something is done by the network's ability to estimate the impact of jamming and incorporate these estimates into the traffic allocation problem.

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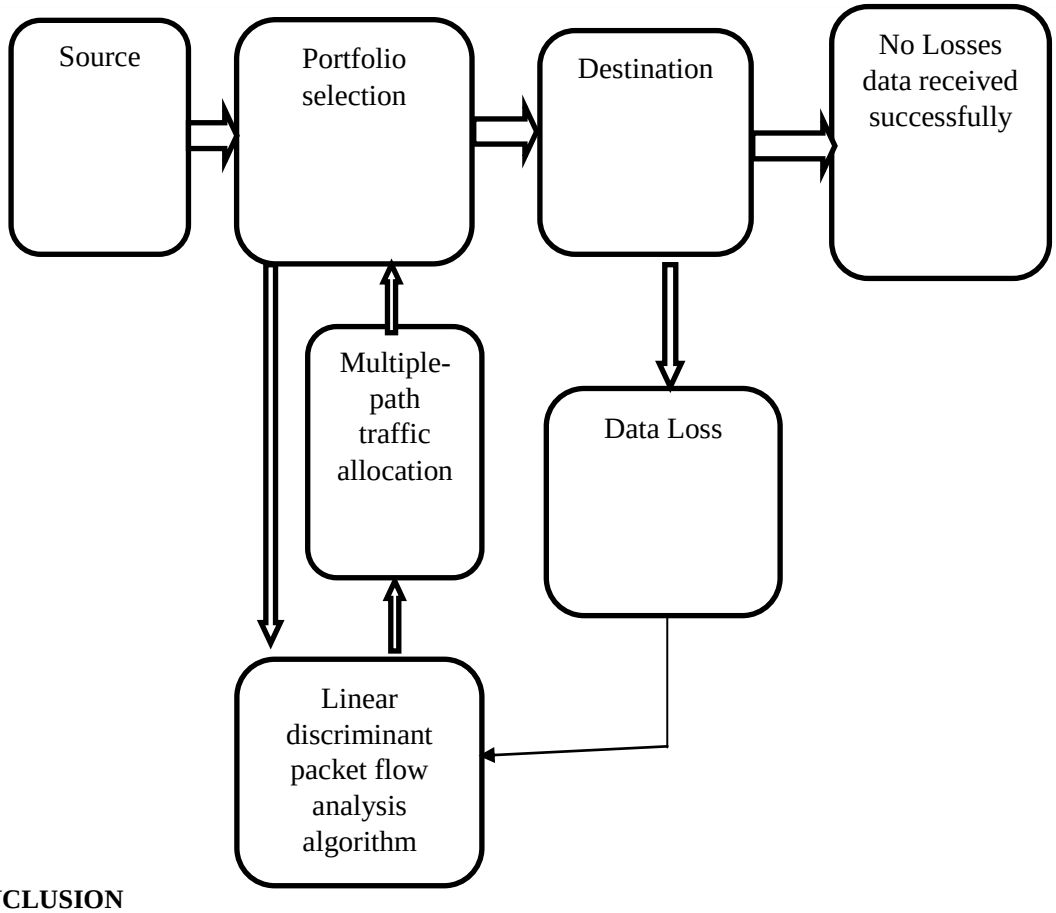

CONCLUSION

We formulate this traffic allocation as a loss network flow traffic flow problem using portfolio selection scheme from financial statistics. Linear discriminant packet flows analysis algorithm used to identify the various path from source to destination and send the data through multiple ways. We demonstrate the network's ability to estimate the impact of jamming and incorporate these estimates into the traffic allocation problem. Finally, we simulate the achievable throughput using our proposed traffic allocation method in several scenarios.

FUTURE WORK

We showed that this centralized optimization problem can be solved using a distributed algorithm based on decomposition in network utility maximization (NUM).

We presented simulation results to illustrate the impact of jamming dynamics and mobility on network throughput and to demonstrate the efficiency of our traffic allocation algorithm.