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Review on Load Balancing Optimal Network through Hybrid Switching

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ABSTRACT

In Cluster based Load Balancing Routing Protocol, this proposed routing protocol is utilized to reduce the energy consumption and enhance the performance of routing. In the decentralized network the proposed CBLB routing protocol make a cluster head and in Software defined networks, the cluster head can be employed to distribute the workload evenly to the cluster members for decreasing the consumption of energy. With the various existing protocols results of experimental examine the proposed protocol presentation. This protocol accomplishes high delivery rate, throughput and decrease the energy consumption, routing overhead and delay. In an hybrid switching Scheme, to reduce the problem of broadcast storm, in the literature probabilistic techniques have been presented to produce a choice of rebroadcast in SDN. Conversely, the random assessment delay (RAD) in methods of probabilistic broadcasting results in poor reach ability and enhanced end to end delay in the jam-packed networks. The method of probabilistic adjusts its RAD based on level of network congestion in this research. The results of simulation disclose that the new scheme outperforms the existing methods in term of saved-rebroadcast, routing overhead and packet delivery in SDN.

Keywords: Cluster Based Load Balancing Routing Protocol, Random Assessment Delay, Software Defined Networks, Hybrid Switching, Packet Delivery.

1. INTRODUCTION

Wireless Sensor Networks is a collection of spatially deployed wireless sensors to monitor several changes of environmental conditions such as air pollutant concentration, forest fire, and object moving for collaborative manner without relying on any primary infrastructure support. In recent times, a number of research efforts have been made to improve sensor hardware and network architectures in order to efficiently organize WSNs for a variety of applications.

Wireless Sensor Networks (WSNs) is the multi-hop communication wireless networks. Due to a wide diversity of WSN application requirements, although a general purpose WSN design cannot fulfill the requirements of all applications. According to some specific applications, several network parameters such as node density, sensing range, and transmission range have to be carefully considered at the network design phase. To achieve this, it is critical to capture the effects of network parameters on the network performance with respect to application requirements.

Wireless sensor networks are placed to monitor the sensing field and collect data from it. Usually, two approaches can be implemented to accomplish the data collection tasks: through direct communication, and multi-hop forwarding. In the first phase, sensor nodes upload the data directly to sink through one-hop wireless communication; this may result in long communication distances and destroy the energy efficiency of sensor nodes. On the other hand, by multi-hop forwarding, data are informed to the sink over multiple relays, and the communication distance is minimized.

2. NEED FOR STUDY

However, since nodes near the sink commonly have a much denser forwarding load, their energy may be exhausted very fast, which reduces the network performance. The goal of the sensor node is to gather the data at fixed intervals then transfer the data into digital signal and eventually send the signal to the sink or the base node. Before monitoring the location, the sensor nodes must forms a network and identify their neighbour nodes. Energy consumption can takes place while uploading the data and sensing the field to Mobile Collector.

3. OBJECTIVES OF THE STUDY

Later sensors form into autonomous groups; those sensors near the data sink typically exhaust their batteries faster than others owing to more relaying traffic. Sensing data in some requirements are time-sensitive, and data collection may be required to be performed within a specified time frame. Hence, an efficient, large-scale data collection scheme should aim at low data latency, long network lifetime and good scalability.

4. LITERATURE REVIEW

In this chapter, a brief description of different papers about geographic routing, cluster formation, data collection, data forwarding, energy consumption and transmission of node to sink is carried out. In modern years, a number of studies have discussed the problems of data collection techniques to discover the efficient path.

E. Lee, S. Park, F. Yu, and S.-H. Kim et al., specified the geographic routing protocols on sensor networks focuses on locating ways to guarantee data forwarding from the source to destination, and many protocols have not been done on gathering and aggregating data of sources in adjacent and a local region. However, data generated from the sources in the region are often highly correlated and redundant. Consequently, gathering and aggregating data from the region in the sensor networks is significant and necessary to save wireless resources and the energy of sensor nodes. To address this issue, the concept of a local sink and Single Local Sink Model in geographic routing is introduced**.** In Local sink, an entity that gathers locally data in a local and adjacent region, then delivers the aggregated data to a global sink. A Global Sink locates in a specific position of the network. It is a base station (or sink) which gathers data from the entire sensor fields and provides them to users in wireless sensor networks. Single local sink is accomplished of carrying out several sources in a large-scale local and adjacent region. This Model is used for defining the optimal location of single local sink because the deadline of data is constrained and the buffer size of a local sink is limited. Then, they also prolong the Single Local Sink Model to a Multiple Local Sinks Model. Hence these are more effective in terms of the data delivery ratio, deadline miss ratio, and the energy consumption.

Miao Zhao and Yuanyuan Yang et al., proposed a three-layer framework (sensor layer, cluster head layer and mobile collector) called LBC-MU.It works distributed load balanced clustering and *multiple-input and multiple-output (*MIMO)uploading techniques a huge number of sensors and a limited number of mobile data collectors in a wireless sensor network. Mobile collectors can take over the burden of routing from sensors, peripatetic over the sensing area and gathering the data from nearby sensors through short-range wireless communications. This approach designed a series of efficient mobile data gathering schemes, which aims to shorten data gathering latency and prolong network lifetime. Moving trajectory planning with multi-hop relays. Moving trajectory planning algorithm is adopted by divide and conquer method that recursively determines a turning point on the path. In mobile collector, the moving path of is dynamically based on the load balancing among sensors, and distribution of sensors is performed along with the moving trajectory planning to prolong the lifetime of network. The objective of this paper is to achieve low data collection latency, long network lifetime and scalability.

X. Tang and J. Xu et al., focuses on the data collection schemes for lifetime constrained in wireless sensor network. The aim is to maximize the accuracy of data collection over the network lifetime by the base station. It is used to develop adaptive update strategy and optimal update strategy for both aggregate and individual data collection. Various sensor networks are deployed to operate for a selected time period is known as network lifetime. Offline algorithm, an algorithm to allocate the numbers of updates is established to compute the optimal data update strategy. Then formulate the lifetime constrained data collection problem in sensor networks show that, compared with the periodic strategy, adaptive strategies significantly increase the accuracy of data collected by the base station.

L. Song and D. Hatzinakos et al., scheduling issues in node to sink transmission. Specifically, the exchange between the probability of successful node energy consumption cost and data retrieval, is studied. The optimization in the framework of dynamic programming is formulated. They focused on sparsely deployed networks, wherever the basic model of single node to sink transmission is considered. This simplified model helps us to understand the fundamental rules and facilitates the analysis behind the above mentioned tradeoff. This model does have practical worth, though it may not always be true that one sensor is within the communication range to the sink, it can be assumed that only one sensor in the range has packets of attention to the sink or supposing there are multiple wireless channels available and only one node will transmit in a specific channel. Thus, the results in the paper serves as the basis for the study of more sophisticated multiple nodes to sink transmission scheduling issues that rise in densely deployed networks.

A.A. Somasundara, A. Ramamoorthy, and M.B. Srivastava et al., focuses on the usage of sensor networks to measure and sense the environment. This leads to a wide diversity of practical and theoretical issues on suitable protocols for transfer and data sensing. In most cases, the sensors are battery constrained that creates the problem of energy efficiency of utmost importance. Both these deployments focus on the problem of environment monitoring and habitat. One can also envision scenarios where a sensor network is utilized to sense pollution levels at planned locations in a large city. Certainly, there will be areas in which variance in pollution level will be more such as manufacturing areas as compared to residential areas. By capturing these behaviors, the sensing rates of sensors at various positions will typically need to be dissimilar. The sensor nodes in areas with greater variation in the phenomenon need to sample more often. Wireless networks have historically considered support for Mobile Elements (ME) as an extra overhead. However, recent study has provided by which network can take advantage of Mobile Elements (ME). In case of wireless sensor networks, particularly the mobile elements are deliberately constructed into the system to improve the network lifetime, and performance as mechanical carrier of data's. The Mobile Element (ME), which is controlled, visits the nodes to gather their data before their buffers are full. It may happen which the sensor nodes are sampling at different rates, in that case few nodes need to be visited more frequently than others. Then, present the problem of scheduling Mobile Element (ME), so that there is no data loss due to buffer overflow in the network.

5. CONCLUSION AND FEATURE WORK

In this paper, DAMHR protocol has for mobile data collection in a WSN. It aims at minimizing the overall energy consumption and network overhead while also ensuring the balanced energy consumption among sensor nodes and prolong network lifetime associated with the data retrieval process. This performance study demonstrates the effectiveness of the proposed protocol. The results shows that DAMHR protocol can knowingly reduce energy consumptions by improving routing problems on nodes and balancing workload among cluster heads, which achieves less data collection time compared to MU-MIMO mobile data gathering and energy saving on cluster heads. In this paper, the energy overhead also justified and explored the results with different numbers of cluster heads in the framework.

Upon receiving this information, SenCar utilizes it to determine where to stop within each cluster to collect data from its CHG. To guarantee the connectivity for inter-cluster communication, the cluster heads in a CHG can cooperatively send out duplicated information to achieve spatial diversity, which provides reliable transmissions and energy saving.

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