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A Systematic Study of Various Routing Protocols in Wireless Communication Environment: A Survey

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A B S T R A C T

We knew that wireless communication network is very sensitive network system because many tiny station are playing their role for performing various computing task the less capacity nodes are not very much capable to get manage routing efficiently as much as required the delay factor introduce losses and many other quality of services lacking in between the process, traditionally there are many routing schemes and protocols has been proposed through many research like AODV, DSR etc also doing their best services over the time but now in current scenario one need to go through with working of various routing protocols and need to compare them in order to know the performance measurements at right direction in this journey we realizes to understand the conceptual requirements and improvements in the area of wireless communication hereby we have been proposed and trying to conduct an comparative systematic study about the different wireless protocols to get find the difference and various weakness existence along with the solution for future wireless network .

Keywords: AODV, DSR, Wireless Routing, Quality of Services, Delay.

1. Introduction

Before to deal with existing articles and their investigation here we need to take a view of wireless networks and their different categories.

1.1 Wireless Networks

A kind of network where networking devices like client machine , server machine and   networking resources like router ,printer, switch and access point are connected to each other via wireless signaling system will be consider in wireless Network.

1.2 Wirelesses LAN, PAN

A Local Area Network like Wireless dynamic network is a collection of distributed networking components and networking resources will be engaged to process some task mobile users communicating via a wireless station. The node can be any device such as a PDA, laptop etc will be used for connectivity mediator. Such networks are usually considered as intranet area networking services used for office work regarding data communication, and are most prevalently used in many offices nowadays. We can classify it in 3 types of WLANs – Independent Basic Service Set, Basic Service Set also referred in mobile communication, Extended Service Set. IEEE 802.11 is primary used for WLAN services is an adopted international standard for LANs which support data transmission capacity from 1 Mbps to 58 Mbps in either the 2.6 GHz or 8 GHz frequency channels. The latest version used today is IEEE 802.11g which provides a high bandwidth compare to previous one that is like of up to 54 Mbps. Following figure 1.1 illustrate the type of network which we discussed earlier [1].

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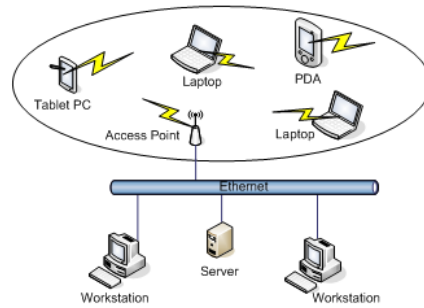E-mail address: adiyabirthere@gmail.com

Figure 1.1: Example of WLAN

1.3 Wireless WANs and MANs

Now are days Wireless WAN and MAN network has been concerned with allocation of computing network resources where multiple node are participating in different way to each other in order to process the wireless data transfer services and the protocol services for the best of safe data transmission along with the best performance state to make network more effective [2] , if one talked about WLAN they need to go through the deep study of available network resources as well as the role of different node and resources along with the observation of traffic issue and congestion problem , in case of high traffic level many times load of congestion get higher since available resources and their capacity gets lower compare to the required one. In this case we need to design a kind of network that can handle the node and data load and perform as expected with the introduction of some buffer management and optimization based technique [3].

1.4   Wireless Distributed Communication

It is a matter for research to protect our network from the effect of congestion in wireless network, to overcome from this issues there are many researches has proposed and continuously working on them to make network error free as possible. In[3], author proposed Proportional Integral Derivative Model for resolve peer to peer network error control arises at fluid algorithm in wireless distributed network, in the proposed design one experimenting primal dual method in order to improve performance at throughput level rather than stability , algorithm has PID frame that takes the responsibility for performing controlled action along with distributed design scenario, it is good at some extent level but simulation study define variation at performance level has been introduced as traffic get heavy. Static Load Balancing can be effective solution based on topological aspect describe in [4] to define traffic engineering that focus on the capacity of link at run time dynamic to control and manage the load, the aim was to represent MPLS application to manage load, here one define when algorithm found in shortest path in wireless distributed network then protocols instruction takes the role to get select low load shortest path instead of previous one, based on the bandwidth optimization and computation .congestion in wireless distributed network can be the stronger barrier for wireless and wired communication if one talk about 3g void communication technology like in[3].

2. Literature Survey

In [4] Collaboration is a huge part of modern software development. Yet most tools used in software development are aimed for single user instances. To support collaborative software practices, researchers and practitioners have presented several tools. The existing tools support collaboration either through distributed version control systems or through client/server-based concurrent text editors. Distributed version control systems do not support real-time collaboration; while the server-based concurrent editors do not support offline work. In this paper, we propose the design of a replica-based collaborative development environment (CDE) within a wireless network of users. The CDE supports both real-time collaborative editing and offline work. In addition, the CDE is scalable, resilient to the dynamic joining/leaving of collaborating users, and can be augmented into existing development environments as a plugin. We evaluate the usability of the CDE with respect to operation propagation time, and the correctness with respect to the causality, convergence and intention preservation (CCI) criteria.

The novel contribution of this work is to demonstrate that how congestion overflows? Can be controlled at small unit of time, minimization of overflow, identical congestion less services. The other aspect to perform this analytical study to design a more accurate congestion heatmap to get efficient routing at global level [07]. The objective of this analysis is also to analysis the industrial size network to reduce intranet area network complexity, High volume and complex zone network i.e. group of cell network , which follows interconnected difference structures are actual the main source for causing serious challenges regarding the congestion issues that get rout-ability complicated. Therefore congestion analysis is required rapidly to get protect from the congestion error at the very beginning so that network handle it as easier as possible with small scale of time so that round up time and throughput can be manage. Identification of the congestion point is the primary task to get design better; if design is reliable the one can fix the congestion error at primary hotspot that covers the remaining zone to be suffered from the same issue [5]. If one talk about the analysis of congestion error then it consists following factors that need to be discussed and considered to get network performance higher as much as possible even in case of highly loaded congested media also.

In [6] proposed a impressive novel approach named Performance Analysis of Wireless Distributed with Difference performance Control Mechanism, it is special designed for Internet , internet is growing technology at today's environment , so that traffic control is one of the issue of discussion ,

that motivates the researchers to resolve the problem with performance modeling , the proposed scheme presents a stochastic queuing model to control congestion and improve performance , scheme consist a new analytical model that works integrated with the collaboration of tradition RED model , model works on the basic principal of reduction of traffic load when channels get long delay , where packet has been going drop as per the need of the network scenario , algorithm perform evaluation of queue memory optimization , the system describes the performance valuation from different point of view like mean system occupancy and delay , evaluation of data loss and throughput has been considered by the system as a packet dropping model[7] .

An efficient routing is an important factor for all WSN protocol in order to meet the node failure, intruder attacks and resource constraints. In the present study, a method is proposed for a hybrid secure routing protocol which offering a high level scalability, security, cluster formation and cluster head selection, so that the network life time can be increased gradually and the results are compared with the LEACH protocol. From the results, the proposed routing protocol can provide better quality of service, increased network life time, energy efficient and more secure routing for wireless sensor network than LEACH protocol [8, 9].

According to [10] proposed a new research regarding the QoS control in area of multicasting communication over distributed Wireless Distributed network, their network should consist the policy of many to many relationship, such type of relationship is cooperate multimedia applications, to get stream delivery services, proposed research gets the time of ─A friendly Active Layered Multicast quality Control Mechanism‖ such mechanism is effective and works with the help of an model called ALMCC , that uses active layer labeling and network adaptability , it specify that how the network state is growing as the network traffic going on and the throughput variation scenario to reflect the threshold measurement by different network state.

In [8] Mobile ad hoc networks (MANET) represent complex distributed systems that comprise wireless mobile nodes that can freely and dynamically self organize into arbitrary and temporary ad hoc network topologies. A mobile ad hoc network is a collection of nodes that is connected through a wireless medium forming rapidly changing topologies. The widely accepted existing routing protocols designed to accommodate the needs of such self-organized networks do not address possible threats aiming at the disruption of the protocol itself.

In [11] author, describes a mechanism to get resolve Wireless Distributed communication issues , in this paper author concentrates on Upstream Resource Management Propagation to manage optical burst switch network from congestion effects, approach find solution for management between the network node and intermediate router node to get manage the running traffic load with multiple path at multi-application environment, in proposed mechanism in case of congestion network alert has been get enabled when congested node create an alert message unit to upstream multi path node and the ingress congested router node throughout the network with the help of upstream propagation state , result is all the congested path has been merge at single congested path so that entire network will not suffer from the Wireless Distributed network error control during the transmission, in response to such congestion message all the congested node works in synchronous mode will go down to asynchronous mode and run a timer to proceed request in sequence with adjusted data rate . Algorithm also use labeling scheme to get differentiate the congested and congestion less path with the help of label.

In [12] proposed an impressive design for the management of making highly reliable and controlled network , nowadays network has been growing due to the factor of access like high scalability and availability that manage ─peer to peer control with the integration of QoS Service architecture that called as ─Carrier Ethernet oriented transport protocol with a novel congestion with QoS integration analytical simulated and experimental validation , research address the way to find solution regarding carries Ethernet, it is known as more flexible, scalable, interoperability and low maintenance network model , it provides peer to peer services with quality of services integration , such type of protocol is high bandwidth delay product, therefore tradition communication protocols are considered due to the desirable choice of transport protocol [30] ,the Ethernet service transport protocol are there to manage the ability of adjusting the required transmission rate dynamically that causes network higher efficient and greater response ,according to the level of traffic pattern in the WLAN network , protocol reflect something difference with other in the way that , it make network to become capable to adjust the rate instead of detect or avoid congestion situation. Rate estimation is the main function that makes approach more valuable. Ethernet protocol incorporates quality of services for more improvement for performance factor.

3. Conclusion

In this section we conclude our study by defining that the traditional wireless routing protocols are not working effectively, the network are facing data loss, delay and inconsistency during the process therefore we need a advance routing policy which can cooperate with routing system having some buffer optimization techniques which ensure the best participate node to participate in the process of routing. At present the challenges are very high the management of reliability, security and safety are equally required by the wireless network. The various article defines major benefits and responsibility of protocols used in wireless network also considered in this study so that the ideal development for the future could be possible for the growth of business and service area without better routing and its operations wireless network is impossible so that this investigation help us to get find the future requirements and possibility in wireless communication system.

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