VOL. 11, NO. 15, AUGUST 2016 ISSN 1819-6608
ARPN Journal of Engineering and Applied Sciences

www.arpnjournals.com

IMPROVED PERFORMANCE OF EVOLUTIONARY GAME THEORY BASED ON COOPERATION IN VANET

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ABSTRACT

By applying the principles of MANET (mobile ad-hoc network) the spontaneous creation of VANET (vehicle ad-hoc network) which are the key components of the intelligent transportation system belong to addition and deletion of nodes. In vehicular interaction networking properties plays an important role. This paper deals with handover scheme to investigate the effects of co-operation in vehicular networks. In different networking conditions like clustering of nodes which increases connectivity and lead to more number of hubs which indeed reduces probability for nodes to change their strategies so easily. In this way relatively more number of packets can be routed through the network cluster with relatively higher rate using efficient routing algorithm which also avoids the receiving of common packets at different nodes due to high cluster in the network. Simulation of this game theory is processed by using NS 2.34 to show the effectiveness of high cluster nodes with minimum payoff and higher efficiency.

Keyword: VANET, MANET, PGG, WLAN, MN, AP.

1. INTRODUCTION

By using the technology VANET we can communicate between the vehicles. Usually PGG (public goods game) method is used so far. In proposed method, by using handover scheme and multi-hop techniques in Dijikstra's algorithm are used which increases the efficiency by decreasing the delay.

The handoff technique refers to the process of transferring data through the connections between one access point and the core network of another access point. Here transfer of data can be done through the physical layer connectivity but also transfer of some data through the mobile node in WLAN, this physical connectivity is called as the association of an MN with AP.

2. LITERATURE SURVEY

Mark Flee ghazis, Jean-Pierre Hubaux, and Levant Buttyan [4] proposed a model based on game theory and graph theory is to investigate equilibrium conditions of packet forwarding strategies. The Proved theorems about the equilibrium conditions for both cooperative and non-cooperative strategies. It performs simulations to estimate the probability that the conditions to be in randomly generated network scenarios for a cooperative equilibrium. Mobility increases mutual dependencies between the nodes.

Xing Ming Zhang, Yuen Zhang, Fan Yan, and Athanasius V. Vasilakos [6], [7]. It measures the increasing traffic load end-to-end delay at receiver for CBR packets. Delay alone is concentrated. Transmission power is minimized. Un-stable links in the topology are considered to be removed by mobility.

R. G. Li and A. Eryilmaz Algorithm [9] describe the problem of designing a policy for the constraints of traffic requirements in a multi-hop network. Scheduling alone is described. With different complexity and characteristics have been proposed using three algorithms.

X. Zhu, P. Li, Y. Fang, and Y. Wang [3] when the number of base stations is on the same order of the number of nodes in the network then only these networks have been shown to scale. It proposed to use distributed MIMO technology in hybrid wireless networks. The first employed resource allocation strategy such that a source and a destination communicate in the ad hoc mode only when they are in the same cell.

A. Mobility management

It is one of the most important and challenging problems for wireless mobile communication that there is a rapid growth in the subscribers and mobility management [1]. Mobility management helps the serving networks to identify a mobile subscriber's point of attachment for data packets delivery (i.e. location with the subscribers as it continues to change its point of connections (i.e. handoff management).

B. Handoff management

Handoff management is a method which derives that the mobile node keeps its connection active when it moves from one point to different point. There are three types in an exceedingly football play method. First, the initiation of handoff is started by either mobile device or a network agent or the dynamically network conditions. The second stage is for a new connection generation, where the network should realize new resources for the handoff connection and perform any other routing operations. Finally, data-flow management has to maintain the delivery of the data to the approved new connection path based one QOS guarantees. Depending on the mobility of the mobile device, it may goes for various types of handoff. There are two types, Intra-system handoff is a horizontal handoff and Inter-system handoff is a vertical handoff.

3. NETWORK SIMULATION

A. Background on the NS simulator

The NS machine covers an awfully sizable amount of applications, of protocols, of network varieties, of network parts and of traffic models. It has a tendency to decide the simulated objects. Ns is Associate in nursing object orientating machine, written in C++, with Associate in Nursing Object oriented extension of tool command language interpreter [8]. This supports a category hierarchy in C++, and the same category hierarchy inside the Object oriented extension of Tool command language interpreter. The basis of this hierarchy is that the category Tool command language Object. Users produce new machine objects through the interpreter.

B. TCP and UDP agent

TCP may be a dynamic reliable congestion management protocol. There are a unit variety of variants of the transmission control protocol. Running associate degree transmission control protocol simulation needs making and configuring the agent, attaching associate degree application-level information supply (a traffic generator), and beginning the agent and therefore the traffic generator.

UDP agents square measure enforced in user datagram protocol. A UDP agent accepts information in variable size chunks from associate application, and segments the info if required. It might be helpful for tracing the file or for simulating UDP applications. The default most section size (MSS) for UDP agents is one thousand byte.

c. Configuring a mobile node

A mobile node contains of network parts like Link Layer (LL), Interface Queue (IFQ), MAC layer, and the nodes transmit and receive signals from etc. At the start of a wireless simulation, we want to outline the sort for every of those network parts. In addition, we want to outline different parameters just like the variety of antenna, the radio-propagation model, the sort of ad-hoc routing protocol employed by mobile nodes etc.

Configure the set of nodes before we are able to produce them. Node configuration API could carries with it process the sort of addressing. The layers are considered to configure the nodes are link layer, interface queue and some of network layers. The configuration Application program interface is outlined. Interface queue follows drop tail method that is first in first out. If the queue is full the last arrived packet messages will be lost.

First, it defines the type of each network components and need to define other parameters like antenna type, radio-propagation model and routing protocol used to measure both quantity and directions. Link layer will transmit the packets faster from a region to another region. The nodes will decide to route the packets between the networks. Medium access control layer will provides good efficiency for data transmission. It is a free error transfer data frames.

Topography will break into grids. Here, all the default value will be one. But to give the different parameters we should load the flat grid value. NAM is used to trace the packets in the graphical information .It will show the movement and path in colour packets. Unsolicited grant service should support packet bit rates. Real time polling service is helpful for the traffic control while in transmission and requirement for the quality of service. On real time polling service will transfer the file with a known throughput and always bandwidth allocation should be higher than the threshold.The hard handover modification that allows receiving downlink data just after synchronization with downlink channel.

This transmission can be used for sending of downlink packets before the MS finishes uplink synchronization with the target BS and before CID (Connection Identifier) update is completed [5]. In the uplink direction, the MS checks the QOS level and starts data transmission immediately. There is short interval within the MS communicates without updated authorization and registration with target BS.

Inter vehicular communication system is a free infrastructure onboard units. It has two types: single hop and multi-hop. Single hop uses for the short range and multi-hop is used for long range of communication. Therefore in proposed system multi-hop technique is used for to reach the long range transmission.

4. PROPOSED WORK

a. Handoff and resource management

In wireless networks, channel frequency, time division, energy level and the number of transceivers are good management of radio resources can facilitate service provider in saving worth and increasing revenue, increasing quality of service [2]. It also facilitates play in wireless networks in reducing play drop chance and keeping QOS throughout and once the play. The hand off related resource management is block diagram is shown in Figure-1.

Simply just in case of a play resource shortage, it isn't potential to stay up the QOS parameters (for example, a required metric is not negotiated) and so the choice is disconnected once the play. Some issues with the resource management connected handoffs embrace admission management, metric reservation, and power management.
In admission management, new calls and on-going calls is treated otherwise. It helps to remain the system from being overloaded. New calls may even be queued and handoffs may even be prioritized. Data required for admission management are: wants from users and applications; the conditions of physical channel; waterproof protocol and programming policy; the standard of user. Thus admission management ought to challenge with the interconnected network, interference and continuous arrival of packets, affiliation duration; and random user movement. Admission management policies are drained either centralized or distributed fashion.

The data live in an exceedingly very wireless network may even be the foremost precious and very

important resource. Once a metric reservation is completed or once a channel is obtainable, a play request is assigned. A simple answer is that each cell has to be compelled to reserve fragmentary info measures of its capability and this reserved information measure have to be compelled to be used only for handoffs and not for the new call requests. However, the open question into notice what amount metric is spare whereas the network to boot maintains the utmost metric utilization and keeps the utmost rate of unsuccessful incoming handoffs below the acceptance level.

Varied schemes {area unit square live} projected to dynamically manage the allocation of knowledge measure resources like Complete Sharing: all traffic classes share the complete metric, Complete Partitioning: metric is split into distinct elements with each portion love a particular traffic class.

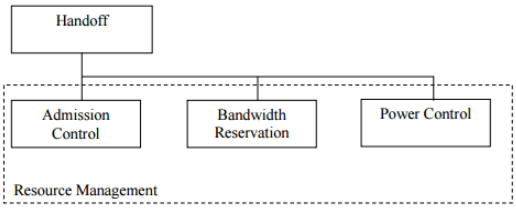

Figure-1. Handoff-related resource management.

The issues for the internet protocol for the next generation are (i) signaling overhead and power requirement for processing handoff messages should be minimized, (ii) QOS should be efficient in the network resources and (iii) the handoff mechanism should be scalable, reliable and robust.

b. Location prediction

Predicting the situation of a mobile wireless user is AN inherently attention-grabbing and difficult downside. It is driven by applications in location management, decision admission management, and sleek handover. It's possible that location prediction can receive even additional interest within the future, particularly given the hyperbolic handiness and location effectiveness in wireless networks.

It has a tendency to gift an outline of location prediction in mobile wireless systems. We have a tendency to don't decide to give a comprehensive survey of all techniques and applications, however supply instead an outline of many forms of algorithms used for location prediction. It has a tendency to classify them loosely into two forms of approaches: Domain-independent algorithms that take results from mathematician analysis and Domain-specific algorithms that contemplate the pure mathematics of user motion also because the linguistics of the symbols within the user's movement history. We have a tendency to in short mention different algorithms victimisation Bayesian or neural network approaches, and finish with some last remarks.

5. COMPARISON BETWEEN EXISTING AND PROPOSED

a. Throughput vs. packet size

Distance and packet data rates always depend on each other. In existing, the packet is consisting more data it will take more distance to transmit the data but in

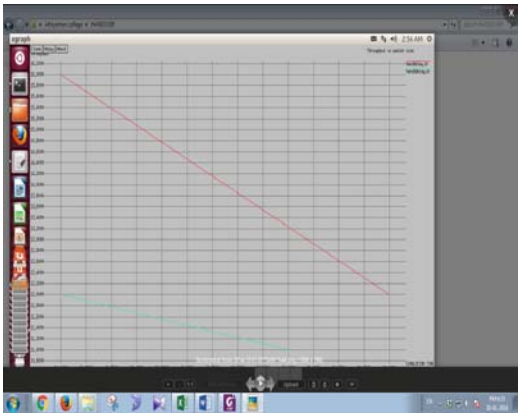

Figure-2. Throughput vs. packet size.

proposed system due to the retransmission attempt large packet data will reduce the throughput. The plot between Throughput vs Packet size is shown in Figure-2.

b. Throughput vs. vehicle speed

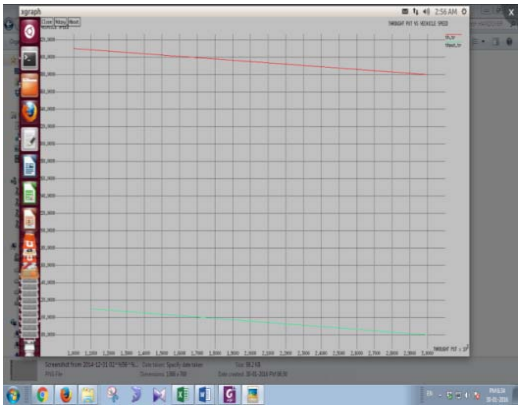

Figure-3. Throughput vs. vehicle speed.

In existing system there is a spontaneous change in the vehicular speed depending upon the throughput but in the proposed system gradual change will occur in the vehicular speed. The plot of Throughput Vs Vehicle speed is shown in Figure-3.

c. Handover delay

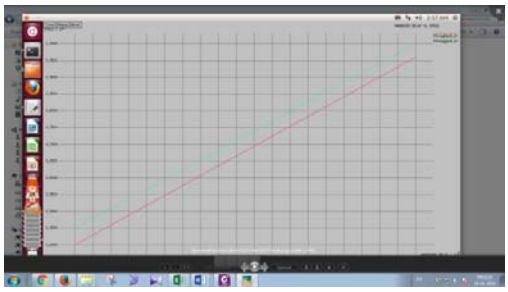

Figure-4. Handover delay.

In proposed system handover delay is better than the existing because of increase in nodes, there will be a proper communication without any delay. The plot is shown in Figure-4.

Table-1. Comparison table.

Parameter	Existing	Proposed
Efficiency	0.73	0.80
Time delay	4 ms	2 ms
Transmission range	100m	200m

6. CONCLUSIONS

In this paper we've adopted a dijikstra's rule that aim is to reducing the football play timing by minimizing the frequent variety of switch between the bottom stations with relevance the user movement. Thus we've entered on mitigating a handover-related issue by exploitation location-based information. This can be solely on side of the advantages that would results from utilizing data of location. There will be an improvement in accessibility of location-based data will increase with the rise in user demand, such data is accustomed improve different side of wireless communication.

7. FUTURE IMPROVEMENT

For instance, future work is required to review the potential and good thing about exploitation location-based data, to enhance the coverage of network/cell style, receiving the destination without any packet loss are coming up with.

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