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A Dynamic Energy Aware based Algorithm for security and Performance of Aodv using Manet

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Abstract— Mobile Ad-hoc Network is a self-forming organization using Wired and Wireless Network. It deploys the network does not centralized administration through mobile nodes in wireless transmission. MANET is rapidly used trendy many fields like military applications, mobile Communications and hospitality surrounding. The energy ingestion ratio declared the battery power area level. They used Dynamic Energy, Energy Aware and Reliability Assured Energy is applicable at my work. The mobile nodes are active in energy, sleep and transfer approaches are used in this category. The proposed works are better than existing AODV that provides the energy efficient output is good level. This paper compares the AODV in existing and proposed level to better than technical methods. In terms of energy consumption for the transmission data in the network. The better performances are Packet Delivery Ratio, Throughput, End to End Delay process and Energy Power Consumption Battery.

Keywords— AODV, DE-AODV, EA-AODV, RAE-AODV.

I. INTRODUCTION

A MANET is a collection of Wireless mobile nodes developing a default simple survived link with non-developing substructure [1]. In these protocols are number of issues, dynamic topology, velocity capacity, energy resources, bit error rate and multihop technology. WLAN are necessity even for home users due to increase the number of delicate mobile electronic devices it's too expensive to deploy persistent infrastructure for wireless network. SWANS [Scalable Wireless Ad-hoc Network Simulator] and Conducted AODV is a transient network formed by a set of randomly traced the wireless and cluster potential mechanism, through wireless communication technology. The VANET, FANET, VAV are methods used to co-operate the military, civilian applications are forwarding to ensure communication the data.

The plan of energy efficient routing protocols for MANET's is an active research area. RL Reinforcement Learning to enable each node to its route request forwarding rate according to its energy profile, to WAN is relatively a research recent trend WSN [3]. DE-AODV routing protocol to catches the optimal routing path in network with maximum energy based on transmitting the packets from source to destination. ESS-DSR is battery capacity routing in terms of Network lifetime, PDR, EED, throughput [5]. In MANET's for routing protocols because the mobile nodes are operated with battery energy and consume more energy through route selection of DE-AODV protocol. The energy consumption of network interface through mobile computing devices through DSDV, AODV. The broadcast flooding process in route discovery in route headers of outwork interface identifiable link layer [7]. Owing is flexible and dynamic nature in MANET of military communications, disaster area communications, Energy resources and rescues. Its difficult to stability of selected routes of balance residual energy to MANET routing algorithms [8].

The overview of routing protocols are Proactive, Reactive and Hybrid routing protocols. To initiate route discovery on demand that relay nodes, its request route discovery on demand that relay nodes, its request the packet from source to destination. The energy consumption ratio there hierarchical structure network. The Learning Automata (LA) that based on a random environment, through producing a feedback system. The network model, node stability measurement model that contributes the current distance and node stability (NS). The reward scheme, good information, bas information and penalty scheme.

$$NSi (t+1) = NSi (t) + a [1-NS (t)]$$

The impact of velocity on control overheads that AODV access the control overheads, while ANNQARA have higher control overheads that our routing algorithms. The Performance of a routing protocols that use of mobility models. The group mobility model, that evaluates the random waypoint mobility model, group mobility model. They declared the data traffic model, CBR, average jitter, average end to end delay processing module. The LANMAR and STAR are moderated downfall through DYMO and RIP. This Paper contains AODV, Bellman ford, DSR, DYMO, FISHIYE, LANMAR, RIP, STAR, ZRP [9].

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II. RELATED WORKS

MANET is a wireless network, where the nodes can be dynamically relocated at any direction. The mobile nodes is unlimited power energy consumption ratio level the energy efficient routing protocol.

Deepa et al[5], proposed the nodes in MANET's can acts as a routers that are capable of sending and receiving the multimedia packets. The efficient energy nodes that exploit the overall network lifetime. It provides the DSR, CMMBCR, ESS-DSR, AODV-DE. It describes the node implementation, route node, route alimentation, route correction, DE-AODV routing protocols. This paper suggests algorithms in DE-AODV, AODV. The proposed work its used in QOS to monitoring and calculate the link reliability. RBP is implemented the energy efficiency in the network. This paper, the data received the network are measured in terms of the maximum number of packets received at the destination. In terms, no of bits and data's are received through per unit of time.

Palaniappan et al[13], in this paper we elaborate the QOS monitoring agents collect and establish the link reliability metrics and link expiration time. In these work, they apply the multipath collection algorithm based on source routing and AOMDV. In fuzzification techniques only used low and high level of routing protocols. In NS2 simulation results, they describe the energy efficient stable routing using QOS monitoring agents techniques (EESRQMA). The 50 number of nodes only used at number of nodes sending, based on node speed, delay, PDR, residual energy, Speed vs delay, speed vs delivery ratio, speed vs residual energy.

Chettibi et al[3], this paper describes the MANET deployment rapid and inexpensive due to to the self-configuring infrastructure. The overall performance of these three routing protocols are reactive, proactive and hybrid. Energy Aware (EA) routing protocols are applicable at data and rectify the solution. Reactive Local protocols are proposed the set of states and reward re-engine. Temporal Difference (TD) are successfully applied to a variety of problems like Robot Navigation, Game Playing and Network Routing Protocols. In NS2 used to execute the RL routing protocols. Q-AODV, SARSA-AODV, Q(μ)-AODV. The impacts of load traffic increases, packet delivery ratio, end to end delay, protocols in energy consumption ratio and Network Lifetime.

Anuraj Mishar et al[4], this paper explains, we elaborate the three levels. Proactive, Reactive and Hybrid routing protocols are available. Proactive like OLSR. Reactive like DSDV, Hybrid like ZRP, ZHLS. The message propagation using RREQ, RREP, RWPM, Average end to end delay, Normalized Routing Load, Throughput.

III. PROPOSED WORK IN MOBILE ADHOC NETWORK

Deepa [5] proposed a energy consumption ratio, throughput, packet delivery ratio, packet loss, better energy efficient than other existing protocols. In that method, Quality of Service (QOS) is also monitoring to calculate the link reliability metrics. Through NLT (Network Life Time) of increasing the level.

A. Overview

Energy level is very much important of routing protocols, they operated only battery power and consumed more energy increasing level of network node lifetime forecast routing. In this paper, an efficiency based route range is projected using DE-AODV, EA-AODV, RAE-AODV.

Every protocol can corrects a node based on supreme vitality level, for transferring packages from one place to another place. The n number of connectivity maintains the smallest activity, the overpowering protocols did not continue accept it contains the energy level is low. The DE-AODV, EA-AODV, RAE-AODV protocols are dynamically uses extreme battery level at the interval of connection letdown it moderates the over-all power depletion and increases the web node generation routing.

B. Node Distribution

- The architecture of MANET described the n number of nodes in MANET, it shows the flow of packets to the destination.
- The mobile nodes are freely moving on distributed network.
- They are self-configuring, independently and rapidly deploy on the network.
- Each node acts as a router, intermediate node, source and destination.
- The configuration is not fixed, so nodes are mutable through computing resources is limited energy level system.

Journal of Current Research in Engineering and Science
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C. Recognition of the Route Node Detection

The Mobile Ad-hoc Network considered the n number of nodes is replaced the interposed region continuously allocated circumstances level. All nodes are probably dynamic, snooze and relay. The DE-AODV, EA-AODV, RAE-AODV protocols are maintains all nodes in active mode during the communication of packages along a certain route. The neighbor nodes are the route node selection path.

DE-AODV, AE-AODV, RAE-AODV ALGORITHM:

```
Set Energy_ Prot = DE, AE, RAE-AODV // for   energy base algorithm;
    Set Node = N;     // Mobile Nodes; N
    Set Sender = S;      // Source Node;
    Set Receiver = R;   // Destination Node;
    Set Routing = DE, AE, RAE – AODV;
    DE-AODV_ method {
    For Route;
    Select route nods:
    VNi < =  Max ( Energy );
    Systematic _ rx into from all nodes;
    Save max _  energy node into value Eg; }
    If (nodes = range (VNi) )
    THEN {
    Node
    Forward (transmitted);
    Node
     Identifier to shortest path (node);
    Else
    Node is under other LNi // Linear Node i
    End if
If (Energy_ rng < = VNj && route = = true && energy == eg)
  {receives routing protocols to next hop};

If (receiver routing packet and send to next hop);
  If (receiver = = R)
{ receives routing packet;
Send ack packet to sender;}
Else { receiver not exist;}
Else { node not received;}
Node is died or low energy;}
Terminate session;
End if;
Future node     FNi     // Failure Node
Else
Source Node     neighbor node;
Packet received     destination node;
```

Journal of Current Research in Engineering and Science
Bi-Annual Online Journal (ISSN : 2581 - 611X)
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End if}

End if}

IV. RESULTS AND DISCUSSION OF MANET

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A. Authors and Affiliations

The suggested system model study to validate the performance of the Network Simulator (NS2). This work focuses on the proposed on DE-AODV, EA-AODV, RAE-AODV protocol. The packets are reached to certain destination at energy level. It selects a node based on minimum and maximum energy level to low, slow and high.

To implement this algorithm, it is introduced a cost function RX as RY = f (Hop count, EED, Bandwidth, P (Speed). To reduce the numbers of packets are flexible and reliable.

The simulation areas are used in 120 nodes. The simulation area thousand five hundred square feet. The n number of packet size is 512 bytes, and then the antenna type is Omni directional module. The proposed protocol is used in Ad-hoc On demand Distance Vector, Dynamic Energy AODV, Energy Aware AODV, Reliability Assured Energy AODV. The transmission ranges are 500 meters contains the 1000 joule per unit. The mobility models are declared at Random way point and energy mobility model.

TABLE I. SIMULATION PARAMETERS

NUMBER OF NODES	120
SIMULATION AREA	NS 2.34
PACKET SIZE	512 BYTES
PROTOCOLS	AODV, DE-AODV, EA-AODV,
TRANSMISSION RANGE	500 M
MAC LAYER	802.11
TRAFFIC TYPE	CBR
MOBILITY MODELS	RANDOM MOBILITY MODEL

V. EXPERIMENTAL AND SIMULATION RESULTS OF MANET

In the present work, NS2 has been executed the general experiments. The performance of existing on AODV,DE-AODV, EA-AODV, RAE-AODV protocol has been studied well. The following characteristics are End to End delay (eed), PDR (Packet Delivery Ratio) and Throughput were analyzed and compared the all protocols to confirm the efficiency.

Packet Delivery Ratio

The computation of Packet Delivery Ratio is carried out by the receiving and delivery packets. PDR can be defined as the ratio of data packets send effectively to destination nodes and the total number of data packets received for those the destination.

Journal of Current Research in Engineering and Science
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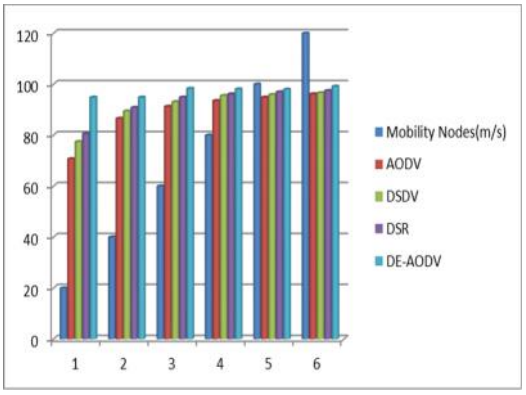
Volume 5- Issue 2, Paper 30 August 2022

PDR = ∑ (Received Packets) / ∑ (Sended Packets) * 100

The efficiency analysis of attained PDR in AODV, DSR, DSDV and modified DE-AODV, EA-AODV, RAE-AODV protocol. When increases the nodes from 20 to 120, the delivery rate is increased from three designed network routing protocols.

Table 1: Performance Comparison of PDR Vs Mobility for AODV, DSR, DSDV and DE-AODV

Mobility (m/s)	AODV	DSDV	DSR	DE-AODV
20	70.7106	77.4596	80.6225	94.8683
40	86.6025	89.4427	90.8295	94.8683
60	91.2870	93.0949	94.8683	98.3192
80	93.5414	95.5248	96.1769	98.1070
100	94.8683	95.9166	96.9535	97.9795
120	96.1769	96.6091	97.4679	99.1631



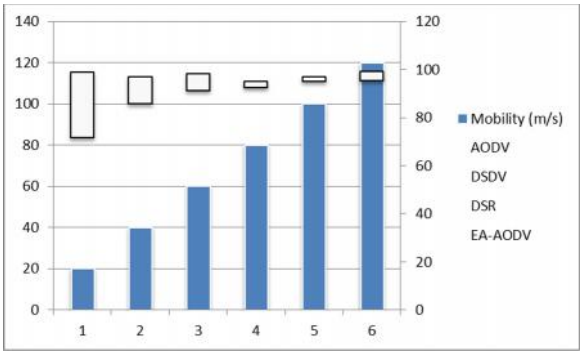
Graph 1: PDR in DE-AODV

Performance Accuracy in EA-AODV

Mobility (m/s)	AODV	DSDV	DSR	EA-AODV
20	71.7106	76.4596	85.6224	97.8386
40	85.6025	89.4427	92.8295	96.8683
60	91.2870	93.0949	93.8683	98.3192
80	92.5414	93.5248	94.1769	95.1070
100	94.8683	95.9166	96.9535	96.9795
120	95.1765	96.6091	97.4679	99.1631

Table 2: Performance Comparison of PDR Vs Mobility for AODV, DSR, DSDV and EA-AODV

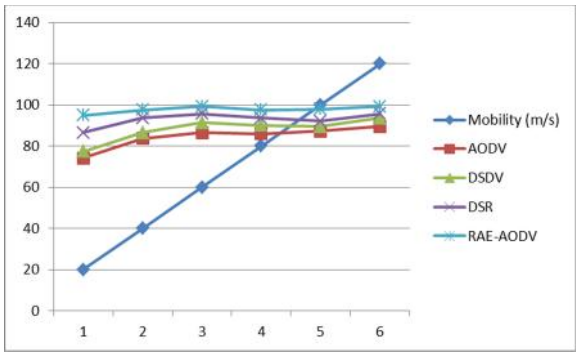
Journal of Current Research in Engineering and Science
Bi-Annual Online Journal (ISSN : 2581 - 611X)
Volume 5- Issue 2, Paper 30 August 2022



Graph 2: PDR in EA-AODV

Table 3: Performance Comparison of PDR Vs Mobility for AODV, DSR, DSDV and RAE-AODV

Mobility (m/s)	AODV	DSDV	DSR	RAE-AODV
20	74.1619	77.4596	86.6025	94.8683
40	83.6660	86.6025	93.5414	97.4679
60	86.6025	91.2870	95.7427	99.1631
80	85.8778	90.1387	93.5414	97.4679
100	87.1779	89.4427	92.1954	97.9795
120	89.4427	93.5414	95.7427	99.1631



Graph 3: PDR in RAE-AODV.

Throughput

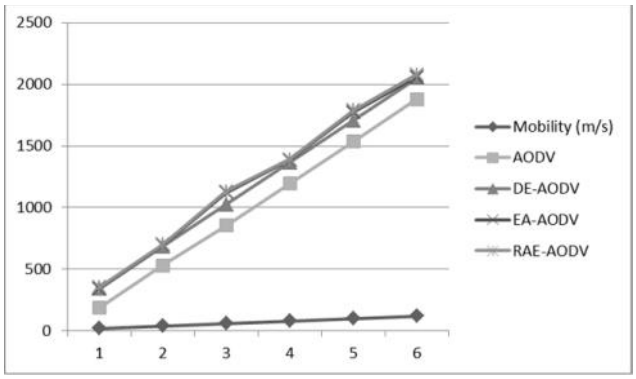
Throughput plays a vital role in measuring the effectiveness of network model and network security. It described the total number of packets bits for higher layer per second. Throughput performance in comparison of existing techniques like, DSR, DSDV, AODV. The proposed methods using DE-AODV, EA-AODV and RAE-AODV protocols.

Throughput = Number of Delivered Packets / Transmission range * Packet Size

Table 4: Performance Comparison of PDR Vs Mobility for AODV, DE-AODV, EA-AODV and RAE-AODV

Journal of Current Research in Engineering and Science
Bi-Annual Online Journal (ISSN : 2581 - 611X)
Volume 5- Issue 2, Paper 30 August 2022

Mobility (m/s)	AODV	DE-AODV	EA-AODV	RAE-AODV
20	187.33	341.33	345.33	355.30
40	529.66	682.66	695.76	700.01
60	853.33	1024.00	1120.01	1130.50
80	1194.66	1365.33	1385.33	1390.00
100	1536.00	1706.66	1770.66	1790.02
120	1877.37	2048.00	2060.00	2080.00



Graph 4: Throughput of AODV, DE-AODV, EA-AODV, RAE-AODV

CONCLUSION

In this work, the efficiency levels are throughput, end to end delay, Normalized Control Overhead and Packet Delivery Ratio for AODV, DE AODV, EA AODV and RAE AODV. In DSR, DSDV and AODV is confirmed the simulation analysis that increased throughput, Packet Delivery Ratio with minimum average energy and energy consumption ratio level. To declare the clustering techniques that vital role in network security and good choice manner. The overall analysis the performance metrics are Dynamic Energy level, Energy Aware level and Reliability Aware Energy are considered. The AODV lower in route updating and route maintenance methods are very good, medium and higher expended level. The energy power consumption ratio are very high and energy economical level. In future Enhancement contains the two hundred and above nodes can be used clustering head techniques.

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