IOSR Journal of Electronics and Communication Engineering (IOSR-JECE)
e-ISSN: 2278-2834,p- ISSN: 2278-8735.Volume 11, Issue 2, Ver. I (Mar-Apr .2016), PP 77-80
www.iosrjournals.org

Ipv4 & Ipv6 Performesover Wimax

Eng: Jamal Omer Alhassan Mhmoud, Supervisory Dr. Hala Eldaw Idris
[1]*Al-Neelain University-Faculty of Engineering Computer Engineering Khartoum – Sudan February, 2016*
[2]*Faculty Of Engineering Neelain University ,Khartoum -Sudan*

Abstract: *Worldwide Interoperability For Microwave Access (WIMAX) Is An 802.16 Wireless Communication Standard That Provides High Speed, Throughput And Cover Larger Area. The Performers Of Addressing Is One Of Most Importance Issued Of Internet Developmentbesides Quality Of Service Support, IEEE802.16 Standard Offer Data Rate Upto 100mbps And Cover Area Upto 50km. The QOS Of High Speed Data Transfer With High Quality Relying Onto Addressing Is Beingillustrating In This Paper.*
Keywords: *IEEE802.16, Wimax, IPV4&IPV6, QOS*

I. Introduction

IEEE 802.16 Is A Series Of Wireless Broadband Standards Written By The Institute Of Electrical And Electronics Engineers (IEEE). The IEEE Standards Board Established A Working Group In 1999 To Develop Standards For Broadband For Wireless Metropolitan Area Networksand Supporting The Tow Type Of Addressing Standards [1].

A. Background

IPV4: Ipv4 Was the First Version of Internet Protocol to Be Widely Used, And Accounts For Most Of Today's Internet Traffic. There Are Just Over 4 Billion Ipv4
Addresses. While That Is A Lot Of IP Addresses, It Is Not Enough To Last Forever. IPV6:Is A Newer Numbering System That Provides A Much Larger Address Pool Than Ipv4, Amongst Other Features. It was deployed in 1999 and should meet the World's IP Addressing Needs Well into the Future, Thescribed IP Address Space Exhaustion Mitigation Techniques, Each with Their Own Draw Backs. These Techniques Were Only Short-Term Solutions to Delay Exhaustion, While More Tangibleprovided In Ipv6.

B: Comparative between Ipv4 and Ipv6

Ipv4	**Ipv6**
Deployed 1981	Deployed 1999
Address In 32 Bits	Address In 128 Bits
Address Shortages: Ipv4 Supports 4.3×109 (4.3 Billion) Addresses, Which Is Inadequate To Give One (Or More If They Possess More Than One Device) To Every Living Person.	Larger Address Space: Ipv6 Supports 3.4×1038 Addresses, Or 5×1028(50 Octillion) For Each Of The Roughly 6.5 Billion People Alive Today.33(*)
Ipv4 Header Has 20 Bytes Ipv4 Header Has Many Fields (13 Fields)	Ipv6 Header Is The Double, It Has 40 Bytes Ipv6 Header Has Fewer Fields, It Has 8 Fields.
Ipv4 Is Subdivided Into Classes <A-E>.	Ipv6 Is Classless. Ipv6 Uses A Prefix And An Identifier ID Known As Ipv4 Network
Ipv4 Address Uses A Subnet Mask.	Ipv6 Uses A Prefix Length.
Ipv4 Has Lack Of Security. Ipv4 Was Never Designed To Be Secure - Originally Designed For An Isolated Military Network - Then Adapted For A Public Educational & Research Network	Ipv6 Has A Built-In Strong Security - Encryption - Authentication
ISP Have Ipv4 Connectivity Or Have Both Ipv4 And Ipv6	Many ISP Don't Have Ipv6 Connectivity
Non Equal Geographical Distribution (>50% USA)	No Geographic Limitation

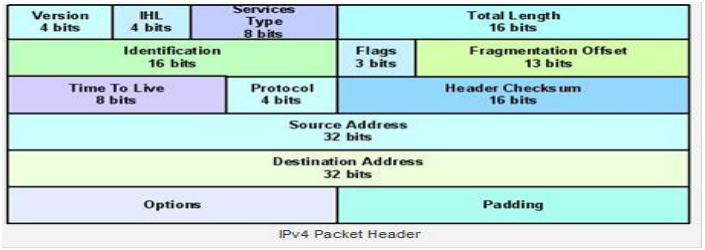

Fig 1 IPV4 Header

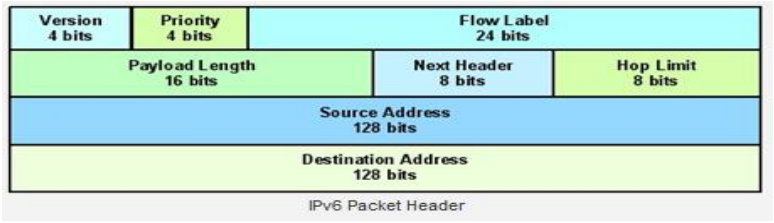

Fig2 IPV6 Header

II. Methodology

OPNET 14.5 Has Used To Simulate Two Different Addressing Versions (IPV4&IPV6)To Analysis The Traffic In Wimax Network, Fourparameters (Delay, Throughput, Packet Dropped, And Retransmission) Has Considered To Explain The QOS.

III. Network Configuration

This Section Discusses Network Components Used on Wimax network Models Running on OPNET 14.5: -

1. Wimax BS.
2. (5) Work Station.
3. Server (Internet).
4. Appling A Heavy Programs Exe (HTTP, FTP, Video Conferences) To Explain Specifies Various Parameters For The Different Of Addressing.

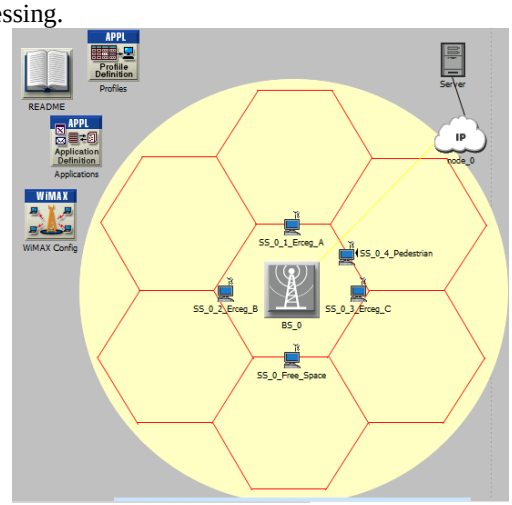

Fig 3Network IPV4

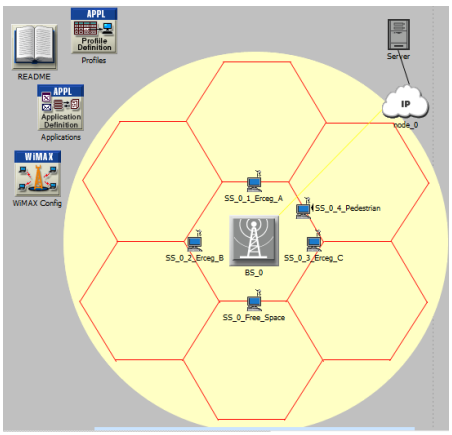

Fig4Network IPV6

IV. Results And Analysis:

The Simulation Run For 10Manet (600 Sec): This Time Had Been Enough To Gain An Overview Of The Proposed Network Behaviour.

4-1 Delay:

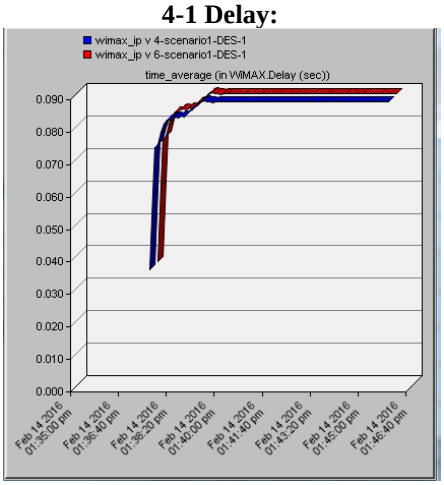

Fig 5

The Fig 5 Show That IPV6 Have Higher Delay Thanipv4, Close To0.09 M Sec, Which Mean That When Using IPV6addressing Result Performance Will Be With High Packet Delay With Reason The Header Packet Length In IPV6(40 Bytes) Is More Longer Than IPV4(20 Bytes).

4-2 Throughput:

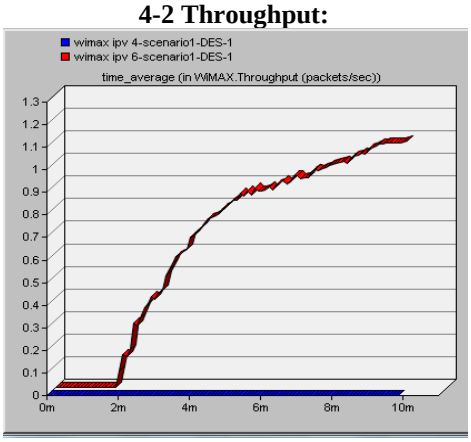

Fig6

The Fig6show That IPV6 Have The Greatest Throughput Compare To The IPV4, Due Bay Loadsize (16 Bits) IPV6 Has Better Performance.

4.3 Packet Dropped:

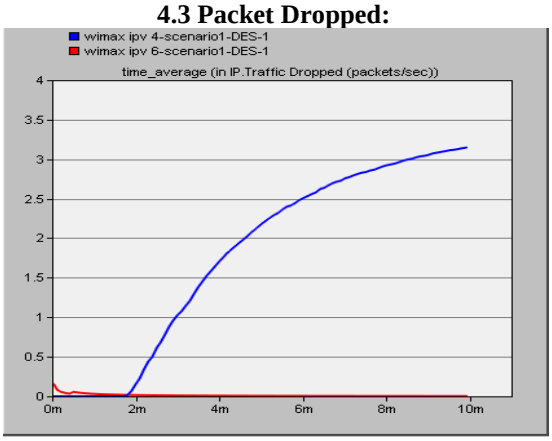

Fig7

The Fig 7, Show That The IPV6 Have A Good Performers Than IPV4 Due Reinvention Fields (Flow Label & Next Header) In The IPV6 Header.

4.4 Retransmission:

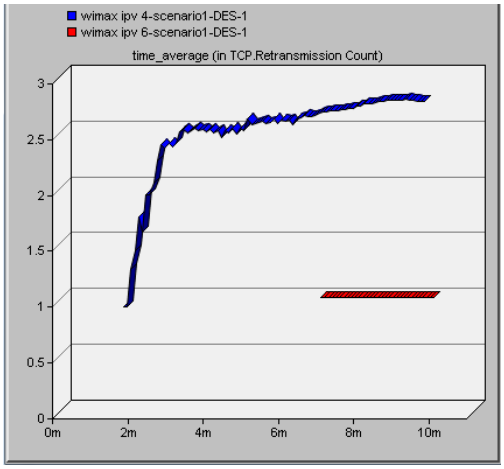

Fig8

The Fig 8, Show That The IPV4 Have A Higher Retransmit Packet Than IPV6 Due Reinvention Fields (Flow Label & Next Header) Who Undercount Packetdrop End Packet Loss In The IPV6.

V. Conclusion

Simulation Is Ran Over OPNET14.5 Tool, And Four Types Of Kpis Delay, Throughput Packet Dropand Retransmission Have Been Considered, IPV6 Have Greatest Throughput Howeversuffers End To Enddelay, Although IPV4 Have Lowest Throughput Than IPV6but Particularize By The Lowest Delay,So, It Is Better To Use IPV6 In Applications That Required High Bandwidth, While It Not Suitable For Real Time Applications Due To The Higher Delay.

VI. List of Acronyms

Kpis Key Performance Indicators
IEEE Institute Electrical and Electronics Engineers
BS Base Station
IPV4 Internet Protocol Version 4
IPV6Internet Protocol Version 6

Reference

[1]. Anoop MS, Elliptic Curve Cryptography - Implementation Guide, May 2007
[2]. Http://Msitbox.Blogspot.Com/2008/03/Elliptic-Curve-Cryptography.Html
[3]. Www.Ieee.Org
[4]. Www.Blackhat.Com/Presentations/Bh.../Bh-Fed-03-Paper-Warfield.Doc
[5]. Http://Www.Netlab.Tkk.Fi/~Puhuri/Htyo/Tik-110.551/Iwork/Iwork.Html
[6]. Muslim Tech.Wordpress.Com
[7]. Http://Www.Tcpipguide.Com/Free/T_Ipv6datagramsizemaximumtransmissionunitmtu Fragment.Htm
[8]. Doglegs -5th Edition
[9]. Http://I.Stack.Imgur.Com/0xaes.Png
[10]. Http://Technet.Microsoft.Com/En-Us/Library/Cc786128(V=Ws.10).Aspx
[11]. Http://Www.Ripe.Net/Ttm
[12]. Www.H3c.Com
[13]. Www.Potaroo.Net
[14]. Www.Cyber Telcom.Org