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Analysis of Handoff Latency in Advanced Wireless Networks

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Abstract

The association of different wireless communication technologies on the way to advanced wireless networks had better face with the developing systems resource utilization and user authentication. Mobility management is vital to omnipresent computing which can be established by location management and distinctive of the mobility management modules. In this work the new protocol is proposed which includes the integration of FHMIPv6 and MIH. The proposed protocol performance is analysed using NS2 simulation. It shows the reduction of handoff latency for video streaming. The cost is also being reduced by the handoff latency while transmitting the signal from one mobile user to another. Further the proposed protocol is compared with the previous protocols.

Index terms— handoff latency, 4g wireless web, flexibility management, handoff progression and situation management, NS2, FHMIPV6â??" MIH proposed integrated soluti

1 Introduction

he federation of different wireless communication technologies on the way to 4G wireless networks had better face some anticipated challenges in advance representative practice implementation. One of the major challenges is the mobile station mobility managing by dissimilar wireless technologies in mandate to acquire the mobile station linked to the unsurpassed available wireless network. To amalgamate these perpendicular wireless networks in one network as a triggered network that can be acquiesce an improved service at lower cost to the manipulator, as well as progress the overall networks resource consumption. However, accomplishing these two goals needs an elegant mobility management system that can be achieved the trade-off flanked by efficient resource utilization and mobile station grasped QoS. Mobility management excludes two parts, handoff and location management. As soon as a mobile station moving across the boundary of dualistic neighbour cells, the MSC prepares a innovative twofold channels in the fresh cell to conserve the call commencing dropping, this operation is called a Handoff Management (HM). The location management (LM) is pursuing the active mobile station (powered on MS) while roaming without a call. Despite the fact the location of a MS essential be known accurately during a call, LM habitually means in what sequential phone calls. The peak important issues in mobility management are seamless roaming (integration among different 4G wireless networks, QoS assurance, operational costs buoyed features and a good utilization of the wireless links (utilizing the wireless acquaintances represented by inhabiting the rheostat channels in the bleeping and location apprise operations). Additionally, perpendicular handoff flanked by radio admittance networks consuming poles apart technologies entail additional adjournment for relinking the mobile terminal to the innovative wireless access network, which may foundation packet losses and degrade the QoS for concurrent traffic. The habitation of bandwidth, entirely computational processes in substructure of the network, power ingestion in MS, plus power consumption in the network are form the cost and all of this is a commercial cost. Therefore the cost bargain is a appropriate important issue in LM. The intentions of this paper are to single-mindedness on handoff management (HM), which is an vital component of mobility management, in aiding seamless mobility across heterogeneous network infrastructures. Correspondingly focusing on the altered protocols in handoff management and equate those protocols for audio, video & FTP (file transfer protocol) transmission.

2 II.

3 Mipv6Protocol

When the surroundings change, the Mobile IPv6 protocol permits mobile nodes to access IP address sub network to continue communications with the communication on the side. Mobile IPv6 (C. **??**erkins et al., 2004) architecture is contained of three key elements: a Mobile node (MN), Home Agent (HA), Correspondent Node (CN). The main processes of Mobile IPv6 are:

1. The regular route of communication is followed by the Mobile Node when it is linked to its home agent link. 2. The neighbour discovery (ND) device to discover whether itself has roaming on a foreign agent link via the Mobile Node. Address, and the Mobile Node to its CoA through the binding update information logs on to the home agent. 5. This Mobile Node informs its communicating on the client its CoA to the basis of make sure the protection. 6. When the mobile node side does not know its CoA, its HA link will interrupt these packets and then use method to forward those packets to the Mobile Node. It will send the information packet from its home network clearance to its home address. 7. It uses IPv6 routing header to direct packets to the Mobile Node, when the announcement to the client recognizes the Mobile Node CoA. 8. When the Mobile Node obtains the packet and recognizes it to be forwarded by the Home Agent link, it informs the CoA to the source node of this packet so that the source node can afterwards be under the CoA packets sent directly to the Mobile Node, and the home agent(HA) link no longer shall forward. 9. It forwards the packet via the Mobile Node through the tunnel, as per the binding update information which is identified by it, when the Mobile Node is on the connection, where the earlier default router obtains a packet which is sent to the Mobile Node.

In this point the role of the default router is related to the Mobile Node's Home Agent, when the Mobile Node to communicate with other nodes in the other direction. The message packet uses a special method to be routed directly to the destination.

If there is a robust security requirement the Mobile Node uses the tunnel to send the information to the Home Agent, and then sent by the Home Agent to the primary address of the tunnel for the Mobile Node's Care of Address.

4 Hmipv6 Protcol

The modification of the basic MIPv6 protocol in the binding registration procedure in the Hierarchical Management is shown through the introduction of location management mechanism, and decrease the registration frequency of the Mobile Node to the remote CN and HA for decreasing HO latency. Now a days the Network based mobility management enables the same functionality as MIP, wihout any changes in the host TCP/IP protocol stack by PMIPV6 the host can change its point of attachment to the Internet without changing its IP address.

PMIPv6 is transparent to mobile nodes, PMIPv6 is used in localized networks with limited topology where handover signalling delays are minimal.

V.

5 Fmipv6 Protocol

The advantage of some programs is that FMIPv6 efficiently decreases HO latency and Packet loss of the performance is improved in Fast handover scheme (Rajeev Koodli 2004), such as presenting link layer mobility calculation or link layer trigger methods, new CoA configuration, and duplicate address detection (DAD) procedure.

The old router will obtain a request broker news RtSol from the NAR, the necessity to go

6 Fhimpv6 Protocol

The important handoff management parameters are to enhance and achieve the HO delay and packet loss. Present days , its more broad application of such programs, MIPv6 application layer management structure use the fast handoff system, which effectually links the fast handoff scheme and hierarchical management program that Fast Handover Support in Hierarchical Mobile IPv6 (H. Y. Jung et al., 2005) (FHMIPv6), and shows good handoff presentation.

The FMIPv6 and HMIPv6 is applied the both in the main principle of FHMIPv6, the Mobile IPv6 (MIPv6) protocol at the same time is not a simple arrangement of the two, it will cause triangular routing problem. The previous access router (PAR) through MAP agent that the data packet sent to Mobile Node will be carried. Then convey the packet to NAR to the previous access router (PAR), in the hierarchical network topologies, forming a triangle routing, the data packet will go through the Mobile Anchor Point agent once more.

The optimization of data flow is realized in Fast Handover Support when Hierarchical Mobile IPv6 (H. Y. Jung et al., 2005) selects Mobile Anchor Point agent as an alternative to Previous access router. In other than pass the previous access router, which the data packet sent to the Mobile Node, is sent to new access router (NAR) openly through Mobile Anchor Point agent, for escape the triangle routing. The request message to Mobile Anchor Point is to get the new forward address from the Mobile Node sending a router agent. Mobile Anchor Point will coming back a router agent declaration to Mobile Node as soon as it obtains the message then

Mobile Node will form a new transfer address and direct bring up-to-date information about the fast binding to Mobile Anchor Point.

The Mobile Anchor Point starts the handoff procedure between the access routers through a primary message to the new access router after receiving it. The handoff initial message is obtained by the new access router, notices proficiency of the new forward address, and Mobile Anchor Point is getting the acknowledged information. The NAR and the Mobile Anchor Point are set up to make the two-way tunnel between them. Mobile Anchor Point sends an acknowledged message of fast binding to Mobile Node, after getting the information. It sends efficient fast binding information to the NAR, as soon as Mobile Node knows the link information. The NAR then transports data to Mobile Node from the above handoff procedure.

The features of reducing the HO delay, and Packet loss, also evades the triangle routing problem, that the fact that Fast Handover Support in Hierarchical Mobile IPv6 links the advantages of Fast Handover for MIPv6 and Hierarchical MIPv6 works very well. But growths the complexity of designing a Mobile Anchor Point agent and the problem of Mobile Anchor Point agent.

7 VII. Fhmipv6 -Mih Proposed integrated solution

The network based mobility management solution in the simulation of mobility across coinciding wireless access networks in micro mobility domain in the simulation setup was implemented. The integrated solution proposed setup is the same as the FHMIPV6 and integrates IEEE802.21 functionality in the MN and the ARs.

8 VIII. Simulation Setup

This simulation shows that the PAR and NAR are in isolated sub networks. The two ARs have both Data Link Layer and Network Layer abilities that grips HOs. They are organized in a hierarchical tree structure of point-to-point wired links, and the router is interrelated to the MAP by a series of agents.

9 Comparative Analysis of different protocols of Handoff

Latency in FTP, Audio and Video tabulation 2:

10 X. Conclusion

In this paper mobility management has been enhanced in 4G especially in Handoff Management. On compression with the results using various Network layer protocols such MIPV6, HMIPV6, FMIPV6, FHMIPV6, PMIPV6, & FHMIPV6-MIH. The proposed FHMIPV6-MIH protocol yields better results. Due to the tendency of fast mobile user having the coverage area is high. The velocity is increased and also the cost is reduced due to the handoff latency while transmission of signal from one mobile user to another. By the comparative analysis of different protocols, the handoff latency of video is drastically reduced in FHMIPV6-MIH to 120msec, which can be used for future applications. These simulation results show that as the velocity increases, the number of handoff will also increases. This scenario happened because of the tendency of fast mobile user to leave the coverage area is high compared to slow mobile user. Therefore, the number of handoff is increasing with reverence to the velocity of the mobile user. The cost is also be decreased due to the handoff latency while transmitting the signal from one mobile user to another mobile user. [1]

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Figure 1: 3 .G

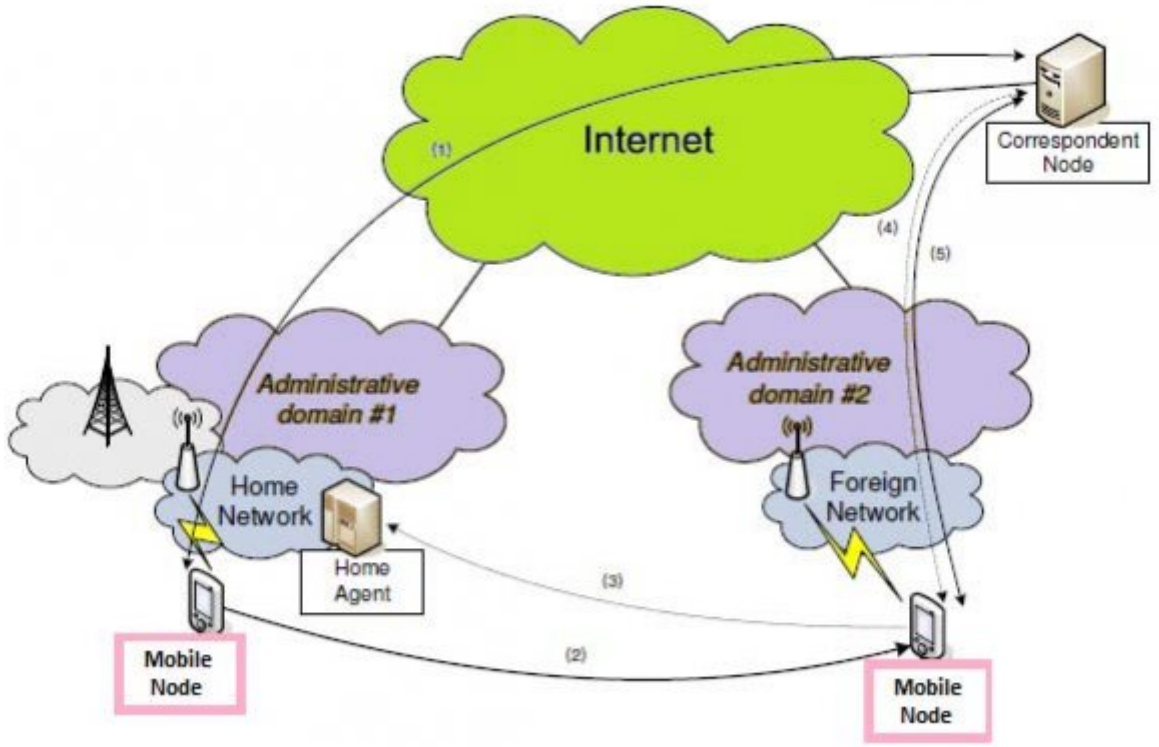

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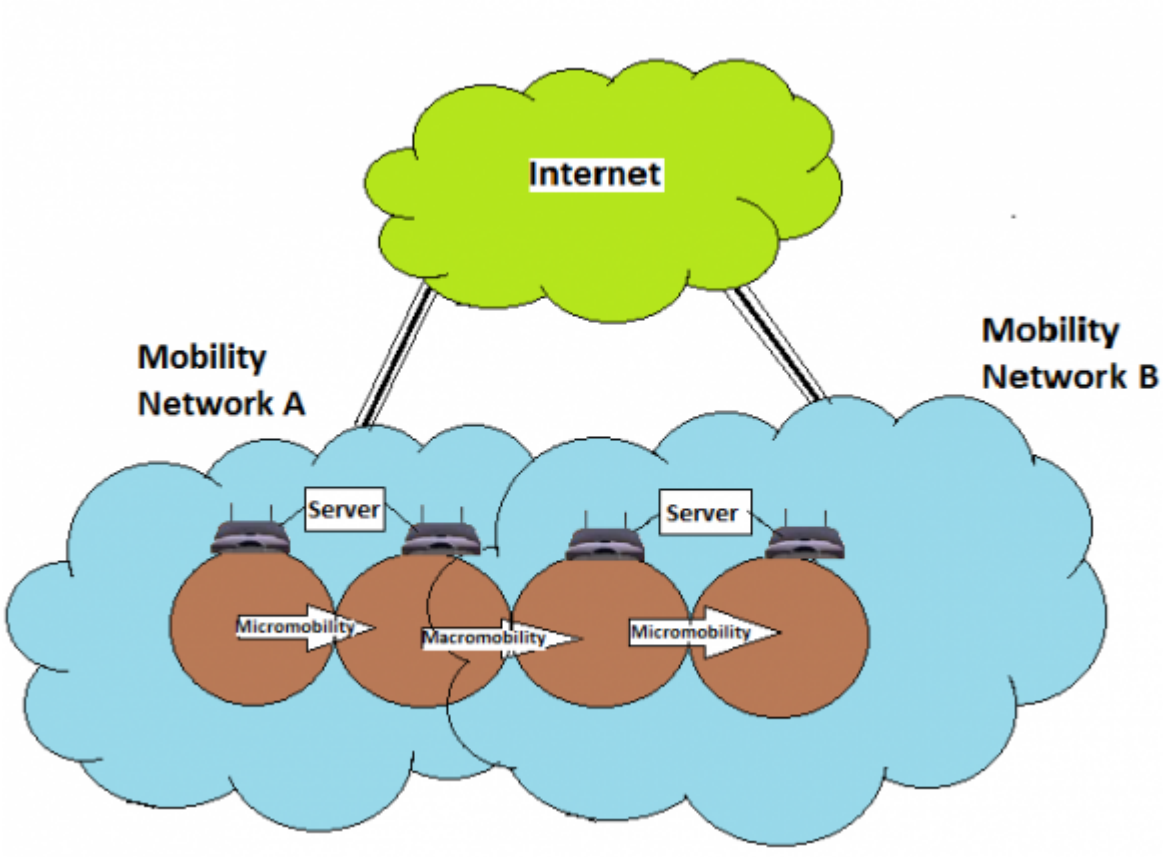
Figure 2: Figure 1 :



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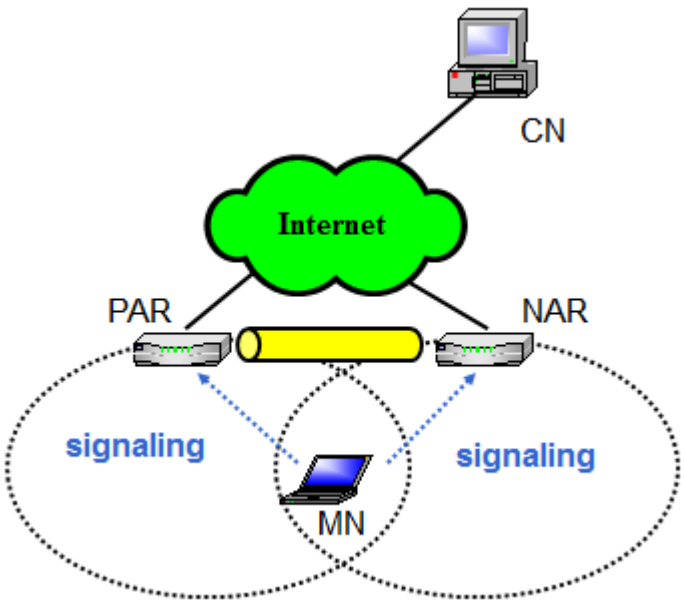

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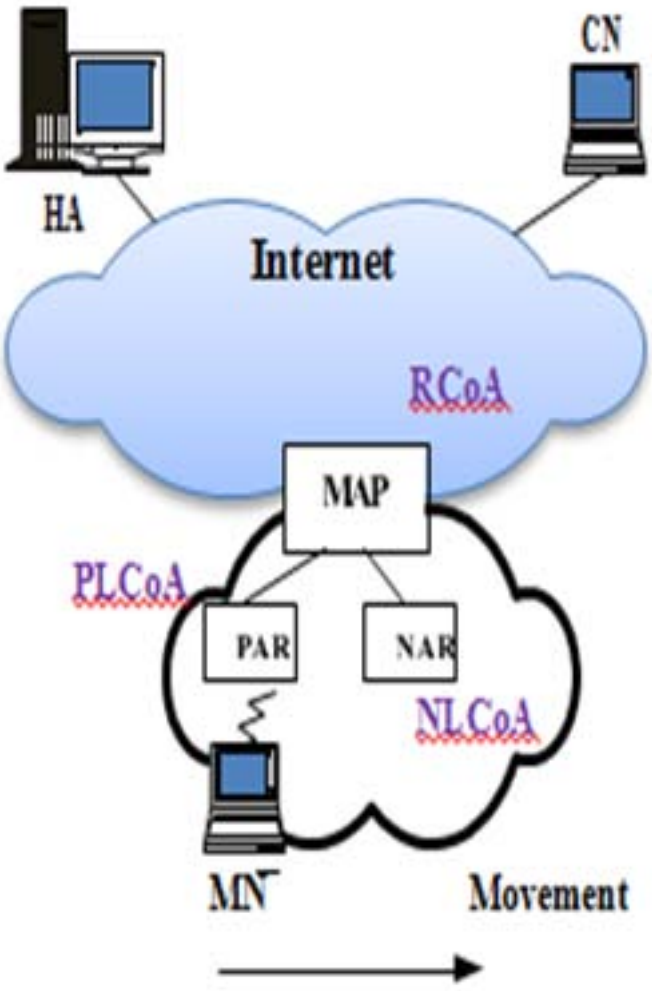

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Figure 5: Figure 4 :G

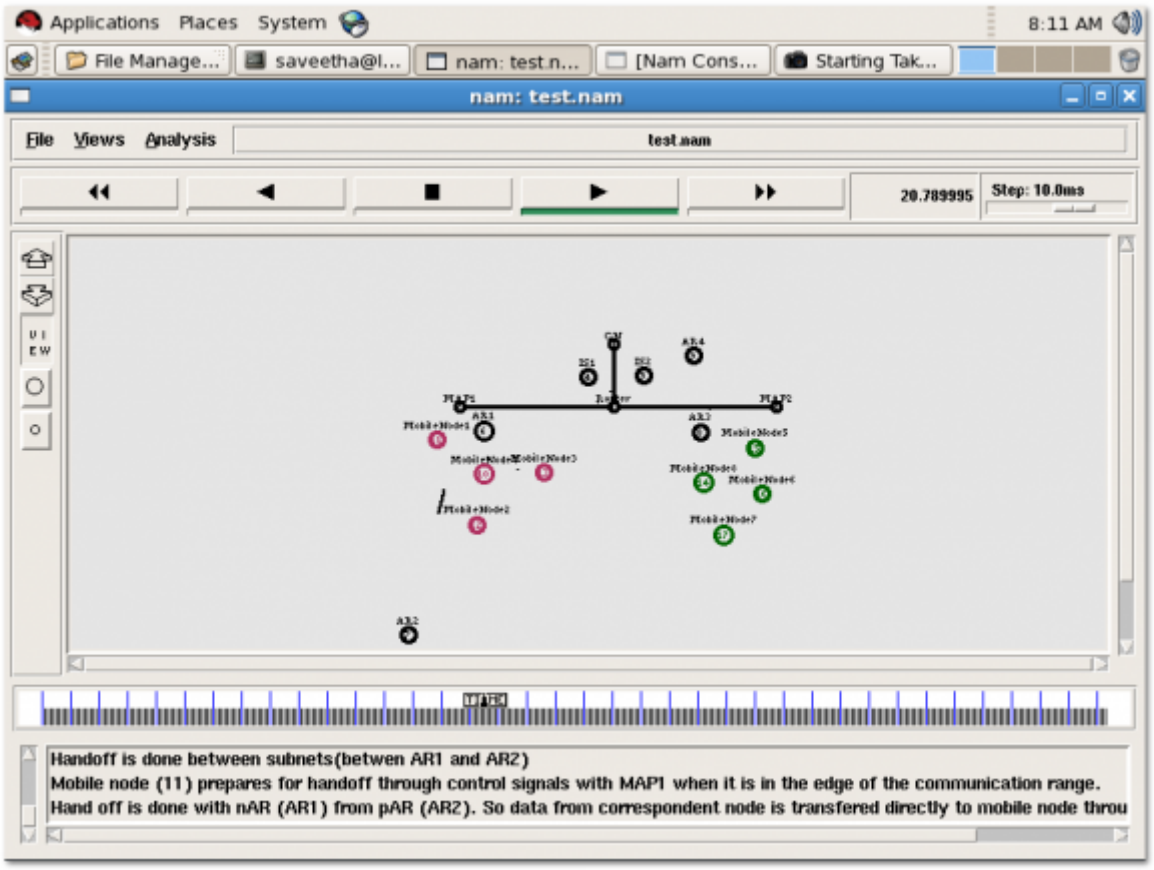

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Figure 6: Figure 5 :

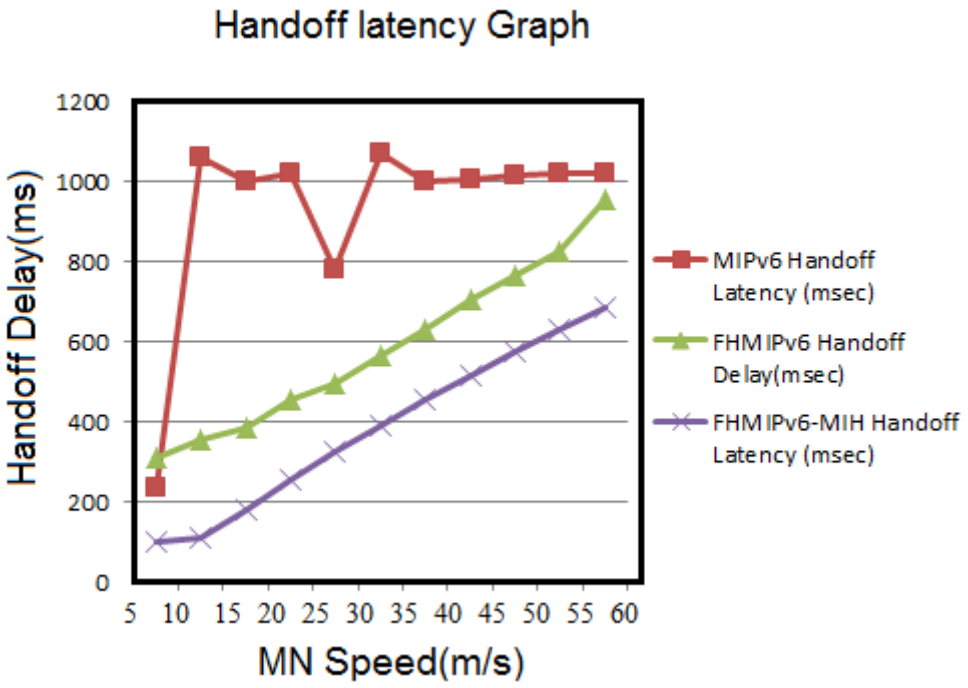

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Figure 7: Figure 6 :

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