

Documents

Islam, S.^a, Khalifa, O.O.^b, Hashim, A.-H.A.^b, Hasan, M.K.^c, Razzaque, M.A.^d, Pandey, B.^e

Design and Evaluation of a Multihoming-Based Mobility Management Scheme to Support Inter Technology Handoff in PNEMO
(2020) *Wireless Personal Communications*, .

DOI: 10.1007/s11277-020-07412-0

^a Institute of Computer Science and Digital Innovation, UCSI University, Kuala Lumpur, 56000, Malaysia

^b Department of Electrical and Computer Engineering, International Islamic University Malaysia (IIUM), Kuala Lumpur, 53100, Malaysia

^c Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia (UKM), Bangi, 43600 UKM, Malaysia

^d Department of Computer Science and Engineering, Green University of Bangladesh, Dhaka, Bangladesh

^e Gyancity Research, Gurgaon, India

Abstract

Handoff management is an indispensable component in supporting network mobility. The handoff situation arises when the Mobile Router (MR) or Mobile Node (MN) crosses the different wireless communication access technologies. At the time of inter technology handoff the multiple interface based MR can accomplish multihoming features such as enhanced availability, traffic load balancing with seamless flow distribution. These multihoming topologies are greatly responsible for reducing network delays during inter technology handoff. This article proposes a multihoming based Mobility management in Proxy NEMO (MM-PNEMO) scheme that considers benefits of using multiple interfaces. To support the proposed scheme design a numerical framework is developed that will be used to assess the performance of the proposed MM-PNEMO scheme. The performance is evaluated in the state-of-art numerical simulation approach focusing the key success metrics of signalling cost and packet delivery cost, that eventually scaling the total handoff cost. The numerical simulation result shows that the proposed MM-PENMO delightfully reduces the average handoff cost to 60% compared to existing NEMO Basic support protocol (NEMO-BSP) and PNEMO. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Author Keywords

Handoff; Mobility management; Multihoming; NEMO; NEMO BSP; PNEMO

Index Keywords

Numerical models, Routers; Design and evaluations, Mobility management, Mobility management scheme, Multiple interfaces, NEMO Basic Support Protocol, Numerical simulation approaches, Packet delivery cost, Wireless communications; Signal theory

Funding details

International Islamic University MalaysiaIIUM

International Islamic University MalaysiaIIUM

Universiti Kebangsaan Malaysia

Correspondence Address

Hasan M.K.; Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia (UKM)Malaysia; email: mkhasan@ukm.edu.my

Publisher: Springer

ISSN: 09296212

CODEN: WPCOF

Language of Original Document: English

Abbreviated Source Title: Wireless Pers Commun

2-s2.0-85085128177

Document Type: Article

Publication Stage: Article in Press

Source: Scopus

ELSEVIER

Copyright © 2020 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

 **RELX** Group™